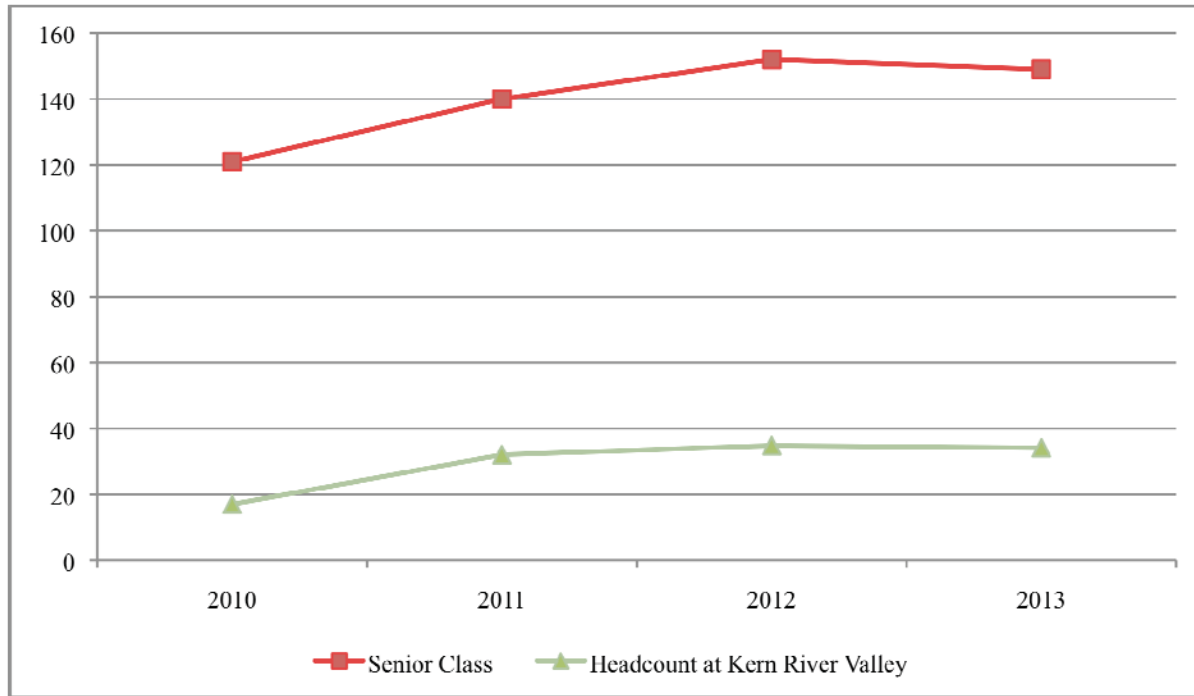


High Schools Headcount Projection



Source: California Department of Education and California Postsecondary Education Commission; analysis by Cambridge West Partnership, LLC

Opportunities for the Future

Future Labor Markets

The U.S. Chamber of Commerce has estimated that 90% of all jobs in the future will require some form of postsecondary education. The U.S. Department of Labor has estimated that one-third of future jobs will demand skills in the science, technology, engineering and mathematics (STEM) disciplines. These observations are stimulating the calls for more students to complete their college degrees and for increased efforts to attract more students to major in the STEM disciplines. These national trends are echoed in California.

The Public Policy Institute of California (PPIC) has pointed to a mismatch between the level of education the future population is likely to possess and the level of education that will be demanded by the future state economy. In their analysis the supply of college-education workers will not meet the projected demand. These estimates portend an opportunity for the College to contribute to the economic vitality of the society and to secure future employment for its graduates. In this longer-term view to 2025, the two industries with the greatest growth (state and local government and health care and social assistance) both require a significant portion of the prospective employees to be college educated. Collectively, those occupational areas where 60% or more of the individuals employed have a college degree are anticipated to

represent 29% of the workforce in California. In this longer-term view to 2025, the two industries with the greatest growth (state and local government and health care and social assistance) both require a significant portion of the prospective employees to be college educated. Collectively, those occupational areas where 60% or more of the individuals employed have a college degree are anticipated to represent 29% of the workforce in California. Some of the details from the PPIC analysis are illustrated in the two tables below.

Table 27: California Growth Industries & Education

High-growth Industries*	Industry Share of State Employment (%)			College-Educated Workers Within Industry (%)		
	1990	2006	2025	1990	2006	2025
Administration & support	3.7	6.5	8.3	14	17	21
Accommodation & food services	4.4	8.1	8.2	15	15	16
Health care & social assistance	7.1	8.8	9.8	37	41	46
Professional & scientific services	4.7	6.2	7.2	52	67	87
Construction	4.6	5.7	5.9	13	11	10
Arts, entertainment & recreation	0.4	1.6	1.7	23	38	57
Education services	1.5	1.8	2.1	56	64	74
Other services	2.7	3.4	3.3	16	20	26
Local & state government	13.8	14.4	14.3	46	52	59
Finance, insurance	3.6	4.2	3.8	32	46	64

* Those growing as a share of overall employment

Source: Public Policy Institute of California. *California's Future Workforce*. 2008

Table 28: California Growth Occupations & Education

High-growth Occupations*	Occupations Share of State Employment (%)			College-Educated Workers Within Occupation (%)		
	1990	2006	2025	1990	2006	2025
Construction & maintenance	3.8	5.8	6	7	7	6
Computer & mathematical science	1.2	2.5	3.3	65	69	75
Building & grounds cleaning & maintenance	1.9	3.8	3.9	4	5	6
Business operations	1.1	2.6	3	31	53	80
Transportation & material moving	4.9	6.6	6.7	8	8	7
Education, training & library	5.4	6	6.9	78	77	76
Health care practitioner & technical	3.3	3.8	4.3	59	64	70
Community & social services	0.5	1.3	1.4	64	63	61
Personal care & service	2.1	3	3	10	15	22
Management	5.6	6.4	6.4	42	54	70
Health care support	1.9	2.1	2.6	12	16	21
Food preparation & service	6.8	7.2	7.4	7	10	13
Protective service	1.9	2.2	2.3	20	26	33
Legal	0.6	0.8	0.8	82	79	75
Arts, design, entertainment, sports & media	2.5	2.5	2.6	48	60	74

*Those growing as a share of overall employment.

Source: Public Policy Institute of California. *California's Future Workforce*. 2008

Several leading occupations can be identified that will require educated workers in the future, if the entire state economy is considered with a focus on the high demand/high wage STEM occupations. The occupational family with the greatest projected demand that commonly requires an Associate Degree for entry is healthcare. The healthcare support job family is the second largest group, followed by computer and math science, and engineers and technicians. Students educated in these fields will have the most opportunities for relocating to areas throughout the State where there will be more available jobs.

Table 29: Where the California Jobs Will be in 2018 (in thousands of jobs)

Occupation Group	Occupation	Some College	%	Associate Degree	%	Bachelor's Degree	%	Total
STEM	Computer & Math Science	89	16%	45	8%	242	44%	545
STEM	Architects & technicians	13	20%	9	14%	25	38%	65
STEM	Engineers & technicians	34	11%	28	9%	141	44%	317
STEM	Life and Physical Scientists	9	6%	6	4%	45	32%	140
STEM	Social Scientists	5	6%	3	4%	27	33%	82
Healthcare	Healthcare Practitioners	109	13%	160	19%	239	29%	836
Healthcare	Healthcare Support	148	33%	51	11%	49	11%	448

Source: Carnival, Anthony; Smith, Nicole; and Strohl, Jeff (2010). *Help Wanted: Projections of Jobs and Educational Requirements Through 2018*. Center on Education and the Workforce, Georgetown University.

The public-private partnership known as the California Partnership for the San Joaquin Valley has identified five industry clusters that they believe should be targeted as part of the efforts to support a highly skilled workforce and promote a competitive economy in the Valley. The identified clusters are: (1) Agribusiness, including Food Processing, Agricultural Technology, and Biotechnology; (2) Manufacturing; (3) Supply Chain Management and Logistics; (4) Health and Medical Care; and (5) Renewable Energy. The Partnership envisioned high quality vocational training and academic institutions in the Valley that would educate the workforce.¹¹

The Centers for Excellence have completed a series of environmental scans and studies to further document the occupational opportunities and related educational requirements in several of these targeted clusters. For example, the agriculture value chain is defined using four clusters: (1) support; (2) production; (3) processing and packaging; and (4) distribution statewide. Agriculture employs close to 2.5 million individuals with more than 800 job titles within the agriculture value chain. With the exception of production, employment opportunities are positive in the other three clusters over the next five years. However, agriculture production employers are concentrated in the Central Valley. Distribution and processing employers are located in the LA/Orange, Central Valley and Inland Empire regions. When surveyed, a majority of the employers indicated an interest in on-site, customized training for current employees and a certificate specific to an occupation. Employers indicated some interest in two and four-year degree programs specific to each occupation. Two-thirds of the employers were interested in potential partnerships with colleges and in creating internship opportunities. The

¹¹ California Partnership for the San Joaquin Valley. *Strategic Action Proposal*. October, 2006

concluding recommendations in the study stress the creation of partnerships and consideration for contract education as the mode of service delivery.¹²

Table 30: Agriculture Value Chain Occupation Projections by Sector

Sector	2011 Jobs	5-Year Growth	Average Hourly Wage
Support	1,446,232	183,018	\$24.56
Production	206,303	-36,364	\$23.34
Processing/Packaging	226,216	5,137	\$23.49
Distribution	585,014	29,913	\$24.04
Totals	2,463,765	181,704	\$23.87

Source: Centers for Excellence. *Agriculture Value Chain in California*. June, 2011

In their study of the bio-energy industry the Centers defined the industry as consisting of five clusters: (1) agriculture, forestry, fishing and hunting; (2) manufacturing; (3) professional, scientific and technical services; (4) public administration; and (5) utilities. Surveys of employers indicated that most experienced difficulty in finding qualified candidates for bio-energy occupations. Employers in the Central Valley expect to increase hiring in seven key occupations over the next three years. The associate degree was identified as an appropriate preparation for three of the occupations that will account for 210 of the 350 projected new jobs¹³.

¹² Centers of Excellence. *Agriculture Value Chain for California*. June, 2011

¹³ Centers of Excellence. *Bio-Energy Occupations in California*. January, 2011

Table 31: Bio-Energy Occupations in the Central Valley

Occupation	2010 Jobs	3-Yr Projected Growth	Growth Rate	Ed Level
Bio-energy Manager or Supervisor	105	0	0%	
Biomass Plant Technician	455	35	8%	
Bio-energy Engineering Technician	525	0	0%	
Bio-energy Instrument and Controls Technician or Operator	595	35	6%	AA
Methane Gas Generation System Technician or Operator	420	140	33%	AA
Bio-Energy Research Assistant or Analyst	70	105	150%	
Biofuels Processing Technician	875	35	4%	AA
Totals	3,045	350	11%	

Source: Centers of Excellence. *Bio-energy Occupations in California*. January, 2011

The Centers also studied medical imaging occupations in 14 counties that comprise the Central Valley. They project a need for 987 medical imaging positions over the next three years in those counties. Among the five occupations, employers had the greatest difficulty hiring cardiovascular technicians and radiologic technician subspecialties. Employers expressed a strong preference for associate degree preparation to enter these occupations. The study findings support the creation, adaptation and expansion of medical imaging programs throughout the region.¹⁴

Table 32: Medical Imaging Occupations in the Central Valley

Occupation	2010 Jobs	3-Yr Projected Growth	Growth Rate	Average Annual Openings	Hourly Wage*
Cardiovascular Technologist	379	494	30%	165	\$29.47
Diagnostic Medical Sonographer	616	837	36%	279	\$28.53
Nuclear Medicine Technician	205	265	29%	88	\$35.97
Radiation Therapist	169	259	53%	86	\$34.41
Radiologic Technologist	1,505	1,761	26%	587	\$27.31
Total	2,874	3,616	26%	1,205	\$31.14
*entry level					

Source: Centers of Excellence. *Medical Imaging Occupations in the Central Region*. March, 2010

In 2009 the Centers of Excellence completed a study of Energy Efficiency Occupations in the Central Valley region. These occupations are commonly found in three different industry

¹⁴ Centers of Excellence. *Medical Imaging Occupations in the Central Region*. March, 2011

sectors: (1) public or private utilities; (2) building design and construction; and (3) building or facility operations and maintenance. With the help of survey responses from 214 firms, the study focused on eight occupations, which totaled 3,200 jobs, based on the survey responses, but could be as high as 10,800 jobs. All eight occupations showed growth over the projection period of three years and employers reported having difficulty finding qualified applicants for openings. Employers also expressed great interest in training programs that could be offered by community colleges.¹⁵

Table 33: Energy Efficiency Occupations in the Central Valley

Occupation	2009 Jobs	3-Yr Projected Growth	Growth Rate
Resource conservation or energy efficiency managers	2,000	440	22%
Project managers for construction or design work	1,890	520	28%
HVAC mechanics, technicians or installers	1,780	820	46%
Building performance or retrofitting specialists	1,290	460	36%
Building operators or building engineers	1,140	220	19%
Energy auditors or home energy raters	1,000	420	42%
Compliance analyst or energy regulation specialists	870	260	30%
Building controls systems technician	820	280	34%
Total	10,790	3,420	32%

Source: Centers of Excellence. *Energy Efficiency Occupations in the Central Region*. October 2009

Given the geography, geology, common weather conditions and alternative energy firms that are developing in Kern District service area, this study may be most pertinent to the educational program planning activities of the College.

Representatives from the Centers of Excellence recently addressed the question, “Where should community colleges invest resources to support “green” employment?”¹⁶ They concluded that the solar industry has a sufficient supply of programs and courses offered by the community colleges. These programs are considered most successful when instruction is informed by industry certificate standards. Wind industry employers present limited instructional program opportunities for the colleges. The colleges could consider forming partnerships with employers near college facilities, or developing strategies to incorporate wind turbine technician training into existing programs. Two-thirds of the jobs in the energy efficiency industry are traditional occupations, not new occupations. Colleges are advised to invest in new content for existing courses, build relationships with employers to create apprenticeships, and “pipeline” training programs, and direct the instruction to industry certification standards. The bio-energy industry, which is strongly tied to the agriculture industry, is projected to have slow growth, and

¹⁵ Centers of Excellence. *Energy Efficiency Occupations in the Central Region*. October 2009

¹⁶ Centers of Excellence. “Green Job Opportunities,” Presentation to the California Community College Association for Occupational Education (CCCAOE) Conference, October, 2011

therefore, few new employment opportunities. For the present, the colleges are advised to monitor state and federal policy or legislation that may support the industry in California. Alternative transportation as an industry is located within large vehicle fleet operations. Where these are near a college, the recommended strategy is to embed alternative fuels education into existing electrical and automotive instructional programs. The compliance and sustainability employment opportunities span across several industries and affect both public and private employers. The greatest need in compliance and sustainability is knowledge of regulations and policy.

These state and regional highlights of occupations for the future provide opportunities for those students willing and able to relocate. There are opportunities for students with different levels of education from industry certification to an Associate Degree or a Bachelor's Degree. As noted below, there are some future employment opportunities in the local county economy as well.

Through the year 2018, the California Employment Development Department (EDD) expects the fastest growing industry sectors in Kern County to be Education Services, Health Care and Social Assistance, each with an annual growth rate of about 4%. Several other sectors will exceed the average annual growth rate of 1.4%. These include Wholesale Trade (3.3% annual growth), Professional and Business Services (2.5% annual growth), and Leisure and Hospitality (2.1% annual growth). Between 2008 and 2018, approximately 43,100 new jobs are expected from industry growth while 71,200 job openings are anticipated from net replacements. That is a combined total of more than 114,300 job openings.¹⁷

In Kern County, 50 occupations with *the most job openings* are expected to make up 57% of all job openings. The occupations with the highest growth numbers are predicted to be farm workers and laborers (crop, nursery, and greenhouse), cashiers, and retail salespersons. None of these are particularly high paying occupations and all usually require only short-term on-the-job training. Occupations requiring little to moderate amounts of on-the-job training (up to 12 months) make up 35 of the 50 occupations with the most openings. Therefore, there are opportunities for the College to contribute to the economic development of the County by providing education and skill development experiences that will lead to higher-wage jobs. Occupations with growth expectations, and which require an associate degree or higher include management analysts, registered nurses, general and operations managers, elementary and secondary school teachers, farm, ranch and other agricultural managers and accountants and

¹⁷ State of California, Employment Development Department "2008-2018 Kern County Projection Highlights," *Labor Market Information* Retrieved November 2, 2011 from <http://www.labormarketinfo.edu.ca.gov>

auditors.¹⁸ The list of the Kern County occupations with the most anticipated openings with selected education levels is found in the table below.

Table 34: Kern County Most Openings 2008-2018 & Selected Education Level

Occupational Title	Total Job Openings	Annual Job Openings	2010 Median Hourly	2010 Median Annual	Education
Accountants and Auditors	500	50	\$30.17	\$62,756	Bachelor's
Elementary School Teachers, Except Special Education	2,640	264		\$60,351	Bachelor's
Middle School Teachers, Except Special and Vocational Education	620	62		\$55,556	Bachelor's
Secondary School Teachers, Except Special and Vocational Education	980	98		\$62,712	Bachelor's
Registered Nurses	1,730	173	\$38.49	\$80,063	Associate
Licensed Practical and Licensed Vocational Nurses	660	66	\$22.02	\$45,794	Post-secondary Voc Ed.
Medical Secretaries	810	81	\$12.24	\$25,455	Post-secondary Voc Ed.
Electricians	660	66	\$28.50	\$59,291	12 mos + OJT & formal ed

Source: State of California, Employment Development Department, "Kern County Occupations With The Most Growth Projected 2008-2018"; analysis by Cambridge West Partnership, LLC

Of the 50 *fastest-growing* occupations in Kern County that anticipate an annual growth rate of 2.5% or more, one-third are health related. Occupations with the highest percentage of expected growth are home health aides (59%) and medical scientists (52%). Three occupations are tied for third place at 50% growth over ten years- physical therapists, network systems and data communications analysts, and dental hygienists. The list of the Kern County occupations with the most anticipated openings and the required education level for each is found in the table below.

¹⁸ State of California, Employment Development Department "Occupational Projections for Kern County 2008-2018" *Labor Market Information* Retrieved November 2, 2011 from <http://www.labormarketinfo.edu.ca.gov>

Table 35: Kern County Fastest Growing Occupations 2008-2018 and Selected Education Level

Occupational Title	An Av 2008	An Av 2018	Empl Chg Percent	2010 Median Hourly	2010 Median Annual	2010 Education
Computer Software Engineers, Applications Environmental Scientists and Specialists, Including Health	440	650	47.7	\$44.66	\$92,889	Bachelor's
Industrial Engineers	200	280	40	\$34.66	\$72,090	Bachelor's
Logisticians	240	320	33.3	\$42.27	\$87,938	Bachelor's
Network Systems and Data Communications Analysts	350	480	37.1	\$35.40	\$73,622	Bachelor's
Personal Financial Advisors	220	330	50	\$34.10	\$70,932	Bachelor's
Petroleum Engineers	210	270	28.6	\$18.92	\$39,349	Bachelor's
Sales Engineers	290	390	34.5	\$56.39	\$117,295	Bachelor's
Dental Hygienists	200	280	40	\$39.33	\$81,790	Bachelor's
Medical and Clinical Laboratory Technicians	220	330	50	\$38.78	\$80,679	Associate
Medical Records and Health Information Technicians	240	330	37.5	\$15.94	\$33,157	Associate
Paralegals and Legal Assistants	240	320	33.3	\$13.58	\$28,247	Associate
Radiologic Technologists and Technicians	240	310	29.2	\$25.25	\$52,537	Associate
Registered Nurses	350	470	34.3	\$28.12	\$58,491	Associate
Respiratory Therapists	3,290	4,440	35	\$38.49	\$80,063	Associate
Fitness Trainers and Aerobics Instructors	220	310	40.9	\$23.75	\$49,401	Associate
Licensed Practical and Licensed Vocational Nurses	230	320	39.1	\$18.25	\$37,957	Post-secondary Voc Ed.
Massage Therapists	980	1,320	34.7	\$22.02	\$45,794	Post-secondary Voc Ed.
Medical Secretaries	280	370	32.1	\$16.26	\$33,821	Post-secondary Voc Ed.
Coaches and Scouts	1,450	2,060	42.1	\$12.24	\$25,455	Post-secondary Voc Ed.
Telecommunications Equipment Installers and Repairers, Except Line Installers	210	270	28.6	[2]	\$39,911	12 mos + OJT & formal ed
	380	480	26.3	\$28.70	\$59,693	12 mos + OJT & formal ed

Source: State of California, Employment Development Department, "Kern County Fastest Growing Occupations Projected 2008-2018"; analysis by Cambridge West Partnership, LLC

The EDD has projected that approximately 11,000 job openings will be available in Kern County each year between 2008 and 2018. Only 8% of these jobs require an Associate Degree or some form of postsecondary vocational education. Preparation at the Bachelor's Degree level is the most common entry path for another 17% of these openings.¹⁹

Table 36: Kern County Average Annual Job Openings by Education or Training Level

Training Levels Bureau of Labor Statistics	2008-2018 Annual Average Total Job Openings	%
BA + work experience	430	4%
Bachelor's Degree	1,390	13%
Associate Degree	410	4%
Postsecondary Vocational Education	480	4%
Total	2,710	
Graduate education	370	3%
OJT	7,840	72%
Total	8,210	
Grand Total	10,920	100%

Source: State of California, Employment Development Department, "Kern County Occupational Projections 2008-2018"; analysis by Cambridge West Partnership, LLC

Through the year 2018, the California EDD expects the fastest growing industry sectors in Alpine, Inyo and Mono Counties to be Education Services, Health Care and Social Assistance, with an annual growth rate of about 2.7%. Several other sectors will exceed the average annual growth rate of .82%. These include Wholesale Trade (2% annual growth), Professional and Business Services (1.5% annual growth), and Government (1.2% annual growth). Between 2008 and 2018, approximately 1,560 new jobs are expected through industry growth, while 4,450 job openings are anticipated from net replacements. That is a combined total of more than 6,010 job openings.²⁰

In these rural counties, the 50 occupations with *the most job openings* are expected to provide 60% of all job openings. The occupations with the highest growth numbers are in the Leisure and Hospitality industry. These include waiters and waitresses, hotel, motel and resort desk clerks, and maids and housekeepers. None of these are particularly high paying occupations, most are seasonal work opportunities, and all usually require only short-term on-the-job training. Occupations requiring low to moderate amounts of on-the-job training (up to 12 months) make up 31 of the 50 occupations with the most openings. Therefore, there are limited opportunities

¹⁹ State of California Employment Development Department, "2008-2018 Kern County Projection Highlights" *Labor Market Information* Retrieved November 2, 2011 from <http://www.labormarketinfo.edu.ca.gov>

²⁰ State of California, Employment Development Department "2008-2018 Eastern Sierra Counties Projection Highlights," *Labor Market Information* Retrieved November 2, 2011 from <http://www.labormarketinfo.edu.ca.gov>

for the College to contribute to the economic development of the County by providing education and skill development opportunities that will lead to higher-wage jobs. Occupations, which are expected to grow and also require an Associate Degree or higher, include registered nurses and forest and conservation technicians.²¹ The list of the Eastern Sierra County occupations with the most anticipated openings with selected education levels is found in the table below.

Table 37: Alpine, Inyo and Mono County Most Openings 2008-2018 and Selected Education Level

Occupational Title	Total Job Openings	Annual Job Openings	2010 Median Hourly	2010 Median Annual	Education
Civil Engineers	30	3	\$42.63	\$88,660	Bachelor's
Elementary School Teachers, Except Special Education	110	11	[3]	\$61,322	Bachelor's
Kindergarten Teachers, Except Special Education	20	2	[3]	\$63,933	Bachelor's
Recreation Workers	60	6	\$11.59	\$24,115	Bachelor's
Secondary School Teachers, Except Special and Vocational Education	120	12	[3]	\$60,992	Bachelor's
Forest and Conservation Technicians	80	8	\$14.93	\$31,058	Associate
Registered Nurses	120	12	\$38.51	\$80,105	Associate
Licensed Practical and Licensed Vocational Nurses	50	5	\$23.52	\$48,916	Post-secondary Voc Ed.
Carpenters	30	3	\$25.19	\$52,392	12 mos + OJT & formal ed
Cooks, Restaurant	70	7	\$12.62	\$26,234	12 mos + OJT & formal ed
Maintenance and Repair Workers, General	90	9	\$17.70	\$36,824	12 mos + OJT & formal ed
Police and Sheriff's Patrol Officers	60	6	\$35.11	\$73,019	12 mos + OJT & formal ed

Source: State of California, Employment Development Department, "Eastern Sierra Counties Occupations With The Most Growth Projected 2008-2018"; analysis by Cambridge West Partnership, LLC

Of the 50 *fastest-growing* occupations in the Eastern Sierra Counties that anticipate an annual growth rate of 8.3% or more, several are health related. Occupations with the highest percentage of expected growth are nursing aides, orderlies and attendants, licensed practical or vocational nurses and registered nurses. The list of the Eastern Sierra County occupations with the most anticipated openings with selected education levels is found in the table below.

²¹ State of California, Employment Development Department "Occupational Projections for Eastern Sierra Counties 2008-2018" *Labor Market Information* Retrieved November 2, 2011 from <http://www.labormarketinfo.edu.ca.gov>

Table 38: Eastern Sierra Counties Fastest Growing Occupations 2008-2018
and Selected Education Levels

Occupational Title	Annual Average 2008	Annual Average 2018	Empl Chg Percent	2010 Median Hourly	2010 Median Annual
Accountants and Auditors	80	90	12.5	\$27.80	\$57,836
Civil Engineers	90	100	11.1	\$42.63	\$88,660
Elementary School Teachers, Except Special Education	280	320	14.3	[2]	\$61,322
Property, Real Estate, and Community Association Managers	60	70	16.7	\$18.42	\$38,316
Recreation Workers	140	170	21.4	\$11.59	\$24,115
Secondary School Teachers, Except Special and Vocational Education	300	330	10	[2]	\$60,992
Registered Nurses	260	330	26.9	\$38.51	\$80,105
Automotive Service Technicians and Mechanics	50	60	20	\$25.29	\$52,595
Licensed Practical and Licensed Vocational Nurses	100	130	30	\$23.52	\$48,916
Medical Secretaries	50	60	20	\$16.42	\$34,150
Real Estate Sales Agents	50	60	20	N/A	N/A
Maintenance and Repair Workers, General	300	350	16.7	\$17.70	\$36,824

Source: State of California, Employment Development Department, "Eastern Sierra County Fastest Growing Occupations Projected 2008-2018"; analysis by Cambridge West Partnership, LLC

The EDD has projected that approximately 600 job openings will be available in Eastern Sierra Counties each year between 2008 and 2018. Only 6% of these jobs require an Associate Degree or some form of postsecondary vocational education. Preparation at the Bachelor's Degree level is the most common preparation for another 17% of these openings.²²

Table 39: Eastern Sierra Counties Average Annual Job Openings by Education or Training Level

Training Levels Bureau of Labor Statistics	2008-2018	
	Annual Average Total Job Openings	%
BA + work experience	20	4%
Bachelor's Degree	60	13%
Associate Degree	20	4%
Postsecondary Vocational Education	10	2%
Total	110	
Graduate education	0	0%
OJT	340	76%
Total	340	
Grand Total	450	100%

Source: State of California, Employment Development Department, "Eastern Sierra Counties Occupational Projections 2008-2018"; analysis by Cambridge West Partnership, LLC

Planning Considerations for Potential New Programs

Bakersfield and Cerro Coso Colleges are the only public providers of post-secondary education in Kern County. The Educational Center at Lake Isabella, operated by Cerro Coso College, is less than a one-hour drive from the main campus of Bakersfield College. Antelope Valley College, located in Los Angeles County, is a 30-minute drive to the Lancaster campus and a 45-minute drive to the Palmdale campus from the South Kern Educational Center at Edwards AFB. Combined, Antelope Valley College, Bakersfield College, and Cerro Coso College offer 311 degrees and/or certificates in fields of study described by the California Community College Chancellor's Office Taxonomy of Programs manual.²³ Before new career and technical instructional programs are implemented, care should be taken to analyze the existing programs offered by these institutions.

²² State of California Employment Development Department, "2008-2018 Eastern Sierra Counties Projection Highlights" *Labor Market Information* Retrieved November 2, 2011 from <http://www.labormarketinfo.edu.ca.gov>

²³ California Community College Chancellor's Office, *Program Inventory* Retrieved November 11, 2011 from http://www.cccco.edu/ChancellorsOffice/Divisions/Academic_Affairs/inventory_of_programs

The enactment of the Student Transfer Achievement Reform (STAR) Act (aka SB 1440) provided the College with an opportunity to “retool” some of its current transfer-oriented programs and to introduce new ones. The legislation requires a community college district to grant an associate degree for transfer to a student in his/her field of study once the student has met degree and transfer requirements for a particular major. Upon completion of the transfer associate degree, the student is eligible to transfer with junior standing into a local California State University (CSU) campus. STAR students will be given priority when applying to a particular program that is similar to his/her community college field of study. The bill prohibits a community college district or campus from adding local course requirements in addition to requirements of the STAR Act, and prohibits the CSU from requiring a transferring student to repeat courses similar to those taken at the community college that counted toward their associate degree for transfer.

The statewide strategy to implement the STAR Act is to develop transfer model curriculums (TMC) through inter-segmental faculty dialogue using the structure of the course identification numbering system (C-ID) as much as possible so that common course descriptions will be used as building blocks. The initial focus of the project is on the top 20 transfer majors within the CSU. The goal is to reach agreements on a model curriculum that all community colleges could adopt for each particular major. Sixteen TMCs have been completed since the law was enacted. Another group of five model curriculums is almost finalized. The College has two disciplines approved among the sixteen available. A program in Art, following the approved TMC, is pending Board approval in lieu of two existing programs. The physical education and English faculty are poised to propose a transfer program using the already approved TMC. Currently, the has the authority to offer additional programs of study that align with the initially approved TMCs.

The College also offers one additional program that potentially aligns with one of the established CSU Lower Division Transfer Preparation (LDTP) patterns, but is not yet aligned to a prospective TMC.²⁴ A complete analysis of the extent to which current College programs of instruction align with the TMCs and the 42 major fields of study included in the LDTP program can be found in the appendices.

In an effort to identify new program areas that would meet labor market needs in Kern and the three Eastern Sierra counties (Alpine, Mono and Inyo), an analysis was completed of the occupations expected to have 20 or more job openings annually through the year 2018. The list was filtered using the Bureau of Labor Statistics training level definitions with a focus on those occupations requiring a Bachelor’s or Associate Degree, some post-secondary vocational education, or long-term on-the-job-training of more than twelve months (either of which might

²⁴ Academic Senate for the California Community Colleges, *SB1440 Update* Retrieved November 19, 2011 from <http://www.asccc.org> and California State University System Office, *Lower Division Transfer Preparation* Retrieved March 30, 2011 from <http://www.calstate.edu/acadaff/ldtp/agreements>

culminate in a certificate). Those occupations that qualified were mapped through the Standard Occupational Classification (SOC) codes to Associate Degree and Certificate of Achievement instructional programs offered by the public community colleges in Kern and adjacent counties. Because the occupations map to one or more Taxonomy of Programs (TOP) code used by the community college system, there can be multiple programs, even within the same community college, offered for each occupation. For that reason some of the values in the “Total CC Programs” column show a count higher than the number of the colleges in the study area.

The table below identifies Kern County occupations commonly requiring a college degree. For each occupation the EDD has projected 20 or more annual job openings through the year 2018. An initial course of study for some of these occupations might begin in a community college; therefore, the transfer degree initiative may be a starting point for instructional programs that lead to those occupations. Realistically, most of these openings likely will be found in the western portion of Kern County.

Table 40: Kern County Occupations That Require a College Degree and the Extent of Neighboring Community College Programs Related to Those Occupations

Educational Preparation	Standard Occupational Classification Title	Annual Average Total Jobs	2010 Median Hourly Wage	2010 Median Annual Wage	Total CC Programs
Bachelor's	Accountants and Auditors	50	\$30.17	\$62,756	4
Bachelor's	Business Operations Specialists, All Other	86	\$31.87	\$66,295	0
Bachelor's	Computer Software Engineers, Applications	26	\$44.66	\$92,889	10
Bachelor's	Computer Systems Analysts	22	\$37.85	\$78,722	6
Bachelor's	Construction Managers	27	\$44.65	\$92,874	13
Bachelor's	Elementary School Teachers, Except Special Education	264	N/A	\$60,351	0
Bachelor's	Engineers, All Other	24	\$50.70	\$105,464	3
Bachelor's	Logisticians	21	\$35.40	\$73,622	0
Bachelor's	Middle School Teachers, Except Special and Vocational Education	62	N/A	\$55,556	0
Bachelor's	Purchasing Agents, Except Wholesale, Retail, and Farm Products	21	\$30.73	\$63,905	4
Bachelor's	Secondary School Teachers, Except Special and Vocational Education	98	N/A	\$62,712	0
Bachelor's	Special Education Teachers, Preschool, Kindergarten, and Elementary School	30	N/A	\$77,000	0
Bachelor's	Teachers and Instructors, All Other	40	N/A	\$50,558	0
Associate	Computer Specialists, All Other	20	\$40.28	\$83,769	4
Associate	Computer Support Specialists	26	\$22.15	\$46,071	0
Associate	Engineering Technicians, Except Drafters, All Other	22	\$33.75	\$70,194	1
Associate	Registered Nurses	173	\$38.49	\$80,063	3

Source: California Employment Development Department, Labor Market Information; California Community College Chancellor's Office; analysis by Cambridge West Partnership, LLC

The table below identifies occupations in the Eastern Sierra Counties (Alpine, Mono, Inyo) that commonly require a college degree. For each occupation the EDD has projected one or more annual job openings through the year 2018. An initial course of study for some of these occupations might begin in a community college; therefore, the transfer degree initiative may be a starting point for instructional programs that lead to those occupations.

Table 41: Eastern Sierra Counties, Occupations That Require a College Degree and the Extent of Neighboring Community College Programs Related to Those Occupations

Educational Preparation	Occupational Title	Annual Average Total Jobs	2010	2010	Total of CC Programs
			Median Hourly Wage	Median Annual Wage	
Bachelor's	Accountants and Auditors	2	\$27.80	\$57,836	4
Bachelor's	Business Operations Specialists, All Other	5	\$23.53	\$48,940	0
Bachelor's	Civil Engineers	3	\$42.63	\$88,660	0
Bachelor's	Community and Social Service Specialists, All Other	2	\$13.83	\$28,769	0
Bachelor's	Elementary School Teachers, Except Special Education	11	N/A	\$61,322	0
Bachelor's	Environmental Scientists and Specialists, Including Health	2	\$33.86	\$70,429	0
Bachelor's	Graphic Designers	1	\$14.44	\$30,024	10
Bachelor's	Property, Real Estate, and Community Association Managers	2	\$18.42	\$38,316	7
Bachelor's	Public Relations Specialists	2	\$26.32	\$54,744	0
Bachelor's	Purchasing Agents, Except Wholesale, Retail, and Farm Products	2	\$21.20	\$44,109	4
Bachelor's	Recreation Workers	6	\$11.59	\$24,115	0
Bachelor's	Secondary School Teachers, Except Special and Vocational Education	12	N/A	\$60,992	0
Bachelor's	Social and Community Service Managers	1	\$28.29	\$58,842	16
Bachelor's	Special Education Teachers, Preschool, Kindergarten, and Elementary School	2	N/A	\$48,076	0
Bachelor's	Wholesale and Retail Buyers, Except Farm Products	1	\$13.87	\$28,850	4
Associate	Computer Support Specialists	1	\$23.04	\$47,939	0
Associate	Dental Hygienists	2	\$23.26	\$48,373	0
Associate	Forest and Conservation Technicians	8	\$14.93	\$31,058	4
Associate	Medical Records and Health Information Technicians	1	\$18.75	\$38,984	1
Associate	Registered Nurses	12	\$38.51	\$80,105	3

Source: California Employment Development Department, Labor Market Information; California Community College Chancellor's Office; analysis by Cambridge West Partnership, LLC

The table below identifies Ken County occupations with 20 or more annual openings through 2018 that commonly require some post-secondary vocational education or formal training plus OJT lasting more than twelve months. Realistically, most of these openings likely will be found in the western portion of Kern County.

Some of these occupations may be accessed through formal apprenticeship programs offered by various trade unions. Employment preference may go to the graduates of those programs. While information from the Federal Bureau of Labor Statistics may show that police and sheriff's patrol officers enter the occupation through extensive on-the-job training, the tradition in California is to hire graduates from a formal Peace Officer Standards and Training (POST)-certified academy program. A similar preference is found for California fire fighters.

Table 42: Kern County Occupations Commonly Requiring Some Post-secondary Vocational Education and the Extent of Neighboring Community College Programs Related to Those Occupations

Educational Preparation	Standard Occupational Classification Title	Annual Average Total Jobs	2010 Median Hourly Wage	2010 Median Annual Wage	Total CC Programs
Post Sec Voc Ed	Automotive Service Technicians and Mechanics	46	\$15.92	\$33,110	10
Post Sec Voc Ed	Bus and Truck Mechanics and Diesel Engine Specialists	27	\$22.57	\$46,945	0
Post Sec Voc Ed	Licensed Practical and Licensed Vocational Nurses	66	\$22.02	\$45,794	4
Post Sec Voc Ed	Medical Secretaries	81	\$12.24	\$25,455	0
Post Sec Voc Ed	Welders, Cutters, Solderers, and Brazers	43	\$26.06	\$54,206	6
>12 mos. OJT & Formal Trgn	Carpenters	36	\$23.40	\$48,676	2
>12 mos. OJT & Formal Trgn	Cooks, Restaurant	45	\$10.97	\$22,810	2
>12 mos. OJT & Formal Trgn	Electrical Power-Line Installers and Repairers	37	\$41.34	\$85,989	0
>12 mos. OJT & Formal Trgn	Electricians	66	\$28.50	\$59,291	4
>12 mos. OJT & Formal Trgn	Maintenance and Repair Workers, General	84	\$17.81	\$37,045	0
>12 mos. OJT & Formal Trgn	Plumbers, Pipefitters, and Steamfitters	23	\$21.27	\$44,225	2
>12 mos. OJT & Formal Trgn	Police and Sheriff's Patrol Officers	28	\$31.52	\$65,563	0
>12 mos. OJT & Formal Trgn	Telecommunications Line Installers and Repairers	31	\$16.71	\$34,760	0

Source: California Employment Development Department, Labor Market Information; California Community College Chancellor's Office; analysis by Cambridge West Partnership, LLC

The table below identifies occupations in the Eastern Sierra counties (Alpine, Mono, Inyo) with one or more annual openings through 2018 that commonly require some post-secondary vocational education or formal training plus OJT lasting more than twelve months. Some of

these occupations may be accessed through formal apprenticeship programs offered by various trade unions. Employment preference may go to the graduates of those programs. While information from the Federal Bureau of Labor Statistics may show that police and sheriff's patrol officers enter the occupation through extensive on-the-job training, the tradition in California is to hire graduates from a formal Peace Officer Standards and Training (POST)-certified academy program. A similar preference is found for California fire fighters.

Table 43: Eastern Sierra Counties, Occupations Commonly Requiring Some Post-secondary Vocational Education and the Extent of Neighboring Community College Programs Related to Those Occupations

Educational Preparation	Occupational Title	Annual Average Total Jobs	2010 Median Hourly Wage	2010 Median Annual Wage	Total of CC Programs
Post Sec Voc Ed	Automotive Service Technicians and Mechanics	2	\$25.29	\$52,595	10
Post Sec Voc Ed	Emergency Medical Technicians and Paramedics	1	\$22.11	\$45,986	0
Post Sec Voc Ed	Licensed Practical and Licensed Vocational Nurses	5	\$23.52	\$48,916	4
Post Sec Voc Ed	Medical Secretaries	2	\$16.42	\$34,150	0
Post Sec Voc Ed	Mobile Heavy Equipment Mechanics, Except Engines	1	\$21.51	\$44,755	0
Post Sec Voc Ed	Real Estate Sales Agents	2	N/A	N/A	7
>12 mos. OJT & Formal Trgn	Bakers	1	\$13.75	\$28,595	
>12 mos. OJT & Formal Trgn	Carpenters	3	\$25.19	\$52,392	2
>12 mos. OJT & Formal Trgn	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	1	\$27.31	\$56,810	0
>12 mos. OJT & Formal Trgn	Cooks, Restaurant	7	\$12.62	\$26,234	2
>12 mos. OJT & Formal Trgn	Electricians	1	\$29.93	\$62,249	4
>12 mos. OJT & Formal Trgn	Maintenance and Repair Workers, General	9	\$17.70	\$36,824	0
>12 mos. OJT & Formal Trgn	Photographers	1	\$14.41	\$29,959	7
>12 mos. OJT & Formal Trgn	Plumbers, Pipefitters, and Steamfitters	1	\$20.30	\$42,223	2
>12 mos. OJT & Formal Trgn	Police and Sheriff's Patrol Officers	6	\$35.11	\$73,019	0
>12 mos. OJT & Formal Trgn	Water and Liquid Waste Treatment Plant and System Operators	2	\$27.92	\$58,076	0

Source: California Employment Development Department, Labor Market Information; California Community College Chancellor's Office; analysis by Cambridge West Partnership, LLC

Embry-Riddle Aeronautical University, one private accredited college, operates from the Naval Air Weapons Station in China Lake. It offers an Associate in Science for two technical fields of study: (1) Technical Management; and (2) Professional Aeronautics.

The discussion of competing institutions above is limited to those with a physical presence near the College. However, the California Virtual Campus (CVC) lists 173 post-secondary institutions that are providing one or more online courses throughout the state. The CVC list contains four four-year institutions and eighteen California community colleges that collectively offer an associate degree in 48 different fields of study.²⁵ A chart of those programs can be found in the appendices. Another source, Associate Degrees Online, identifies 78 different associate degrees that are available to California residents from the various institutions that provide online instruction throughout the United States.²⁶

Curricular Opportunities for Improvement and Expansion

With these labor market considerations as a backdrop, the College has been discussing adding some new instructional programs. In that regard, the general philosophy of the College is to focus on a *limited number* of instructional programs and services that the College can do well. In the long run, there will be a commitment to continue growing the College in ways that can be *sustained*.

On the transfer side of instruction, the emphasis is on developing articulation agreements so that students can transfer with a minimal loss of units.

With respect to the basic skills courses, there is interest in consolidating the curriculum where possible, and facilitating the students' rapid completion of those foundational courses. Some discussion has been occurring within the English and math faculty as to how students might be accelerated through those offerings. Presently, the faculty intend to embed instruction in the "soft skills" and basic skills instruction in other courses. The strategy is to help students learn how to be college students. Related instructional strategies will flow from the work that Bakersfield College faculty are doing in the redesign of basic skills instruction that is funded by the TAACCCT grant.²⁷ These efforts will be evaluated in a few years.

On the CTE side of instruction, the focus is on continuing to offer programs that meet community needs to help people find and retain employment or start successful businesses. Several initiatives are under way including:

²⁵ California Virtual Campus *Programs Offered by College* Retrieved November 17, 2011 from <http://www.cvc.org>

²⁶ Associate Degrees Online *List of Participating Schools* Retrieved November 17, 2011 from <http://www.associatedegreeonline.com>

²⁷ Grant Narrative Retrieved 1/22/12 from <http://westhillscollge.com/district/about/partnerships/c6/taaccct/>

- The College has collaborated with the Sierra Sands Unified School District and the NAWCD to create an engineering technology program, which is taught in part at the high school but includes opportunities for an apprenticeship at the Air Weapons Center.
- The College is proposing several new degree and certificate programs that will be forwarded to the Chancellor's Office for approval this academic year.
 - Emergency medical service (degree). This program will be articulated with Loma Linda University were a similar Bachelor's level program exists.
 - Emergency medical technology (certificate of achievement)
 - Performance wind turbine technology (certificate of achievement)
 - Renewable energy technology (degree and certificate of achievement)

The two energy programs had been a part of the industrial technology program. However, after conducting a Day of Curriculum (DACUM) exercise and some gap analysis in the fall of 2010 both programs were redesigned to meet growing industry expectations. In September 2011 College officials traveled to Laramie County Community College (WY) to review their nationally well-known renewable energy programs. Curriculum ideas were also obtained from Iowa Lakes Community College (Estherville, IA), Columbia Gorge Community College (Hood River, OR) and Texas Tech University (Lubbock, TX). These programs are being established as independent instructional programs.

- In response to learning outcomes assessment information the College has enhanced the solar installation certificate by adding curriculum that will better enable the students to pass state licensing examinations.
- In the wind energy field the College will be developing a national curriculum model for a two-year program in that discipline. Some of that curriculum development work will be completed through the National Science Foundation CREATE Center consortium (11 colleges) grant.
- The recently awarded TAACCCT grant will be used to develop two programs. One will be a transition program from Certified Nurse Assistant (CAN) to Licensed Vocational Nurse (LVN) while the other will be in Medical Assisting.
- The College has scheduled a March 2012 articulation conference for all the high schools in the service area to discuss pathways and curriculum alignment. There will be a focus on the best preparation for the high school students to complete before they exit high school and come to college. This conference is part of a larger effort to formalize the relationships the College has with the many small high schools in its vast service area.

The new program ideas being discussed and considered include those listed below. The list is an unranked set of conversation notes gathered from multiple sources. In sales talks, these would be listed as leads or potential prospects for development. The College will need a great deal more exploration and dialog before pursuing any of these ideas. However, that is part of what a futures plan does, it represents stated dream ideas or stepping off points in an adventure. It is a value added discussion that takes for granted that much of what you already do is worthwhile and important, while asking what's next or what could be added, what flavor should be tried next, what's just over the next horizon?

- The College has been discussing some curriculum ideas for geothermal and solar thermal technologies. There are two geothermal plants operating in the service area at this time and a third is to be built. Also, there are a number of solar thermal plants being designed for the service area while others are located in western Kern County.
- Because the Welding at IWV is impacted further development of that program and related trades programs is under consideration.
- The coming changes to create electronic medical records will be important driver of change in the health care industry. The three colleges in the Kern District, plus Taft College, have been discussing a health information technology program in which all four schools would offer components of the curriculum. Cerro Coso would deliver currently established instruction via the internet but students could rotate around the other three colleges to take the balance of the courses on campus.
- Discussions have begun to consider a transfer program in Psychology that would follow the SB 1440 curriculum model.

Although there are many good ideas emerging from these discussions, the College as a whole is not always able to move forward with new ideas or the development of current initiatives. Currently there is a critical shortage of funds, full-time faculty, and support personnel. The College, however, can ill afford to ignore future growth opportunities. It must continue to look forward with a “can do” attitude that will position the College for a brighter future that grows programs to prepare future workers for a vibrant California economy and its College service area with a competent workforce. It is within this framework that the College should continue to engage in these conversations regarding its future.

Programs that Need Strengthening

The enrollment volume and numbers of program awards conferred might be used by the College to distinguish strong programs from those that might need to be strengthened. A ten-year analysis (2001-02 to 2010-11) and a six-year analysis (2005-06 to 2010-2011) of the degrees and certificates awarded in each program by the College were completed. In focusing on the more recent past six years, one liberal arts program offered by the College stood out as being very strong. This program was likely the major of choice for those students preparing to transfer to a four-year institution.

Given the size of the College a second group of programs appear to be strong as shown in the table below.

Table 44: Cerro Coso College Strong Programs 2005-06 to 2010-11
(six-year award period 2005-06 to 2010-11)

Unique Code	Title	TOP	Year Approved	Status	Award Code	Description	Annual Average Awards
18559	Liberal Arts: Social & Behavioral Sciences	490100	2008	Updating	A	AA	94.4
1930	Management	50600	1970	Updating	S	AS	12.7
18915	Human Services	210400	2009	Active	S	AS	12.5
10976	Business	50500	1970	Updating	S	AS	10.0
18557	Liberal Arts: Arts & Humanities	490310	2008	Updating	A	AA	9.6
1969	Administration of Justice	210500	1970	Active	S	AS	8.5
18558	Liberal Arts: Mathematics & Science	490100	2008	Updating	A	AA	7.8
11577	Child Development	130500	1998	Updating	S	AS	7.7
1928	Business Administration	50100	1970	Updating	A	AA	6.5
1957	Vocational Nursing	123020	1974	Active	T	Certificate 30 to <60	6.5
10976	Business	50500	1970	Updating	A	AA	5.0
1969	Administration of Justice	210500	1970	Active	T	Certificate 30 to <60	4.7
10977	Computer Information Systems	70200	1996	Updating	S	AS	3.3
14426	Web Design	61430	2003	Updating	S	AS	3.0
1980	General Sciences	490200	1970	Updating	A	AA	2.8
1938	Engineering	90100	2009	Historical	A	AA	2.8
1938	Engineering	90100	2009	Active	A	AA	2.8
1930	Management	50600	1970	Updating	T	Certificate 30 to <60	2.7
1957	Vocational Nursing	123020	1974	Active	S	AS	2.5
1933	Administrative Office Assistant	51400		Pending New Submission	S	AS	2.0
1928	Business Administration	50100	1970	Updating	S	AS	2.0
1933	Business Office Technology	51400	1970	Updating	S	AS	2.0
1933	Office Clerk	51400		Pending New Submission	S	AS	2.0
10976	Business	50500	1970	Updating	T	Certificate 30 to <60	1.5
18915	Human Services	210400	2009	Active	A	AA	1.5

Source: Kern District Annual Program Award Files; analysis by Cambridge West Partnership, LLC

Most of these programs appear to be performing within expectations. Most are solid but are not yet excelling. It is unreasonable to expect every instructional program to be “stellar” but there may be steps for improvement that some of the programs could take to continually make improvements. As noted in the status column, many of these programs are currently in the process of being updated and some are pending a new submission for a substantive change to the program requirements. Most, but not all, of these programs have been established for a considerable period of time.

The College is expected to set program performance expectations, systematically collect evidence, reflect upon that evidence to reach conclusions regarding program improvement initiatives, and to make those changes supported by resource allocations where appropriate.

Programs that Might be Reconsidered

The College has notified the Chancellor's Office that they wish to inactivate several previously approved programs: (1) Automotive Technology; (2) Engineering Drafting Technology; (3) Engineering Technology; (4) Natural Resource Management; (5) Digital Animation; (6) Computer Technology; (7) Electronics Technology; and (8) Physical Sciences Technology.

In the six-year analysis of program awards, several programs were identified that conferred one award a year or less, in some cases no awards had been granted during that time. These programs are grouped into two categories. Many are being updated and others are new and pending an approval. The list of the programs in this category (those that are currently being reconsidered and changed) is located in the appendix.

A second category of programs were marked as active in the program inventory, had few awards conferred, and were not marked as being changed. As noted in the "year approved" column, ten of these programs are relatively new and have not had an opportunity to "gain traction" just yet. It is sometimes the case in career and technical programs that students become early leavers with marketable skills (ELMS). In short, they do not remain to complete the program as the faculty had designed the curriculum. With the current emphasis on increasing the numbers of students who complete a college degree or a certificate that will launch them into employment, there may be opportunities that the College should pursue to strengthen or redesign these programs. A detailed list of these programs to watch or reconsidered is found in the table below.

Table 45: Cerro Coso College Programs to Watch and Reconsider
(six-year award period 2005-06 to 2010-11)

Unique Code	Title	TOP	Year Approved	Status	Award Code	Description	Annual Average Awards
1969	Administration of Justice	210500	1970	Active	F	Certificate 60+	0.0
1969	Administration of Justice	210500	1970	Active	L	Certificate 18 to <30	1.0
20641	Administration of Justice	210500	1970	Active	L	Certificate 18 to <30	0.0
30766	Administration of Justice	210500		Active	S	AS-T	0.0
16622	Central Valley Higher Ed. Consortium Transfer	490110	2005		A	AA	0.2
1972	Fire Technology	213300	1970	Active			0.0
20642	Fire Technology	213300	1970	Active	S	AS	0.2
18915	Human Services	210400	2009	Active	L	Certificate 18 to <30	0.5
18917	Human Services Worker	210400	2009	Active	L	Certificate 18 to <30	0.5
18917	Human Services Worker	210400	2009	Active	F	Certificate 60+	0.5
19148	Industrial Technology	95600	2009	Active	S	AS	0.0
19149	Industrial Technology	95600	2009	Active	L	Certificate 18 to <30	0.0
19150	Industrial Technology: Electronics Technician	95600	2009	Active	L	Certificate 18 to <30	0.0
19151	Industrial Technology: Engineering Technician	95600	2009	Active	S	AS	0.5
19156	Industrial Technology: Solar Technician	95600	2009	Active	E	Certificate 6 to <18	0.0
19157	Industrial Technology: Wind Technician	95600	2009	Active	B	Certificate 6 to <18	0.0
1945	Machine Tool Technology	95630	1970	Active	S	AS	0.0
1945	Machine Tool Technology	95630	1970	Active	T	Certificate 30 to <60	0.0
20639	Machine Tool Technology	95630	1970	Active	L	Certificate 18 to <30	0.0
22920	Mathematics	170100	2010	Active	A	AA	0.0
30793	Mathematics	170100		Active	S	AS-T	0.0
16909	Theatre: Acting	100700	2006	Active	A	AA	0.2
20640	Vocational Nursing Certificate	123020	1974	Active	T	Certificate 30 to <60	0.0
1946	Welding Technology	95650	1970	Active	S	AS	0.3
1946	Welding Technology	95650	1970	Active	B	Certificate 6 to <18	0.2
19735	Welding Technology Certificate	95650	1970	Active	L	Certificate 18 to <30	0.0

Source: Kern District Annual Program Award Files; analysis by Cambridge West Partnership

Program Changes and Adjustments

A comparison of the instructional programs listed in the 2011-2012 College catalog and the official inventory of instructional programs authorized to the College by the Chancellor's Office revealed a potential discrepancy. An accounting of degrees and certificates awarded by the College from 2005-06 to 2010-11 supported the same conclusion. The College catalog lists six Job Skills Certificates (JSC). However, the College may report those program awards to the state and receive a certain amount of "credit" for those awards. Very few Job Skills Certificates awarded to students have been reported to the State in the last ten years. These awards, submitted in the annual program data, are counted as successes for completions in both the Carl Perkins Act vocational programs accountability and in the Integrated Postsecondary

Education Data System (IPEDS) reports of student program completion. However, unless the College has consistent resources to make sure the awards get into the annual program award data it may be counterproductive to submit them. Having these awards appear one year and not the next may be a bigger problem than not having them at all.

The College has acquired approval from the District Board of Trustees to offer such programs, but the College cannot record a student's accomplishment of the curriculum requirements on a transcript. Two programs on the list could be submitted to the Chancellor's Office for approval as a Certificate of Achievement, a third program would require a few additional units to qualify. Were that done the College could record the award on the student's transcript. Unless the required units are brought up to at least 18 semester credits, the awarded certificates, even if reported to the State, would not be credited to the College in the Accountability Reporting for Community Colleges (ARCC) framework. The current list of JSCs is detailed in the table below with the units required to complete the certificate.

Table 46: Cerro Coso College Job Skills Certificates

Job Skills Certificate Title	Units Required
Assistant Teacher Certificate of Proficiency	6
Associate Teacher Certificate of Proficiency	12
Administrative Medical Assisting Certificate of Proficiency	9
Clinical Medical Assisting Certificate of Proficiency	10
Medical Assisting Externship Certificate of Proficiency	3
Digital Media Skills Certificate of Proficiency	12

Source: Cerro Coso Catalog 2011-12

Four of the JSC programs have been or will be converted to a Certificate of Achievement. In doing so the College may now note the award on the student's transcript and may start to report awards to the Chancellor's Office. These changed programs are listed below.

Table 47: Job Skills Certificates Converted to Certificates of Achievement

JSC to Certificate of Achievement	Units Required
Converted to Certificate of Achievement	
Solar Technician Certificate of Achievement	12
Wind Technician Certificate of Achievement	12
Pending Approval as a Certificate of Achievement	
Office Clerk Certificate of Proficiency	12
Welding Technology Certificate	12

Source: Cerro Coso Catalog 2011-12

There is another consideration that has arisen recently. A number of policy papers have been published in the past year that suggest that only certificates of 30 units or above have economic value. This may be due, in part, to the small number of certificates requiring fewer units being recorded, and thus being available for analysis in the evaluation of a student's return on investment. With these recent research papers, California public policy makers might advocate for elimination of lower unit certificates.

The College may wish to consider changes to career and technical education programs that would lead to immediate entry-level employment. For example, an effort might be made to place programs into related knowledge groups and thereby build upon the pathways concept that the public school district has adopted and is being advocated in federal circles. These efforts might be undertaken in conjunction with articulation discussions between the College and public school districts.

In the current fiscal environment the College may want to redouble efforts to ensure that programs are sustainable, i.e. economically viable and responsive to employers needs. One strategy toward that end is to anchor the instruction in industry-endorsed standards and third-party certification of learning outcome accomplishments. Where appropriate, programs should be articulated with local four-year universities.

Projections for Future Growth

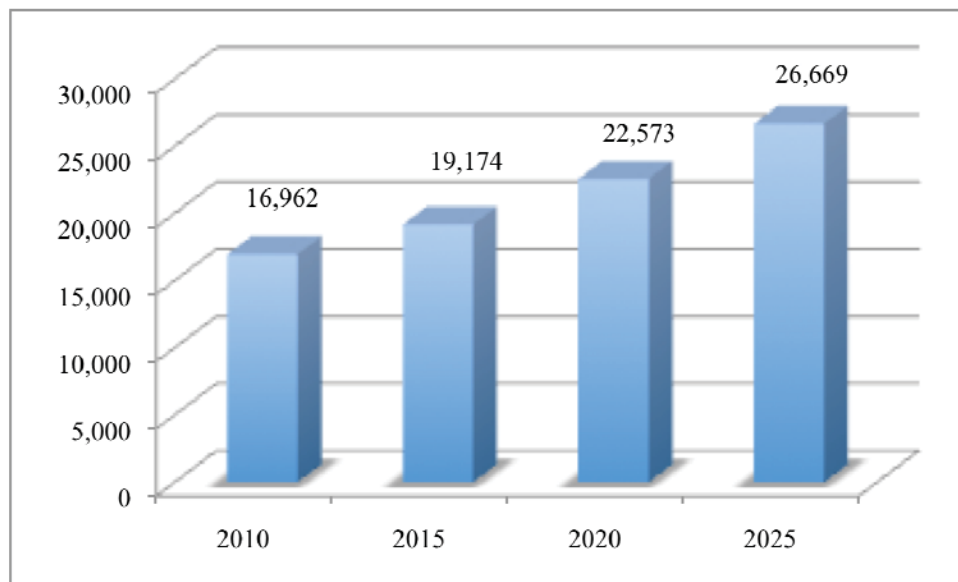
Determination of the Future Capacity for Growth

Linking the Educational Master Plan's internal and external analysis to space quantification completes the process. It balances the current and future curriculum, instructional delivery modes, learning environment, and necessary support structures with providing a comprehensive program of campus development.

As a dynamic process, Educational Master Planning involves a mixture of methods and a variety of assessments. Looking to the future, a master plan must provide for sufficient facilities to accommodate higher enrollment numbers, to improve the teaching/learning environment, to address new program development, to integrate the latest technological innovations, and to provide adequate space configuration permitting flexible teaching methods.

Considering the economic and fiscal factors, the growth projection for the on-campus Weekly Student Contact Hours (WSCH) at the Indian Wells Valley site was established at an annual 3.82% for benchmark years 2015, 2020 and 2025. This growth represents a reasonable forecast for on-campus instruction at this College at this time. In any planning cycle, the proposed facilities are time specific and address future needs for increased capacity that may or may not materialize. The strategic goal is to plan for sufficient facilities that are flexible enough to accommodate additional enrollments.

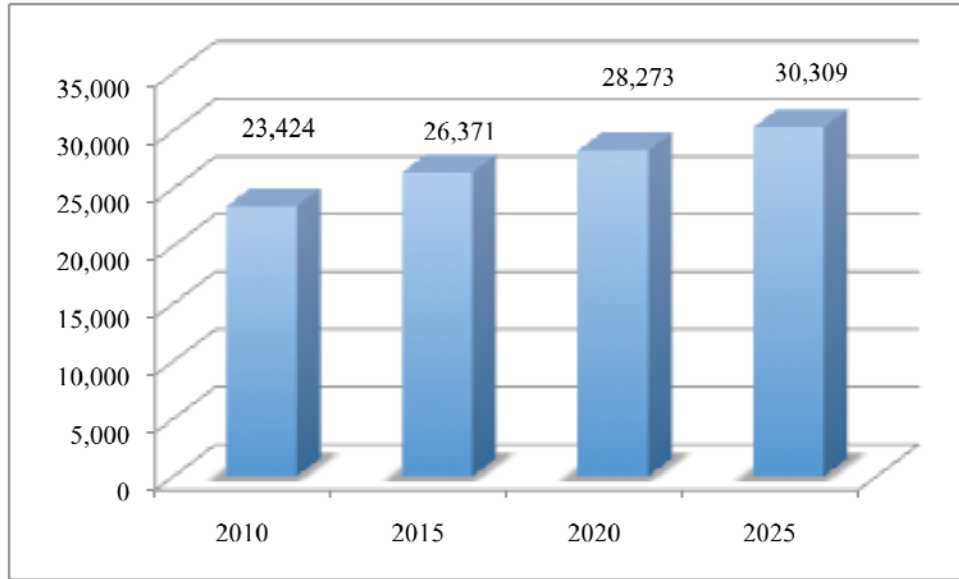
**Indian Wells Valley On-Campus only
Fall Term Weekly Student Contact Hours (WSCH) Forecast**



Source: Cambridge West Partnership, LLC

In addition to the on-campus WSCH activity, the online instructional efforts are quite robust. The online WSCH growth projection was established at an annual 1.96% for benchmark years 2015, 2020, and 2025. This growth represents a reasonable forecast for online instruction at this College; however, the College might elect to curtail the extent of offerings in an effort to stimulate additional on-campus activity.

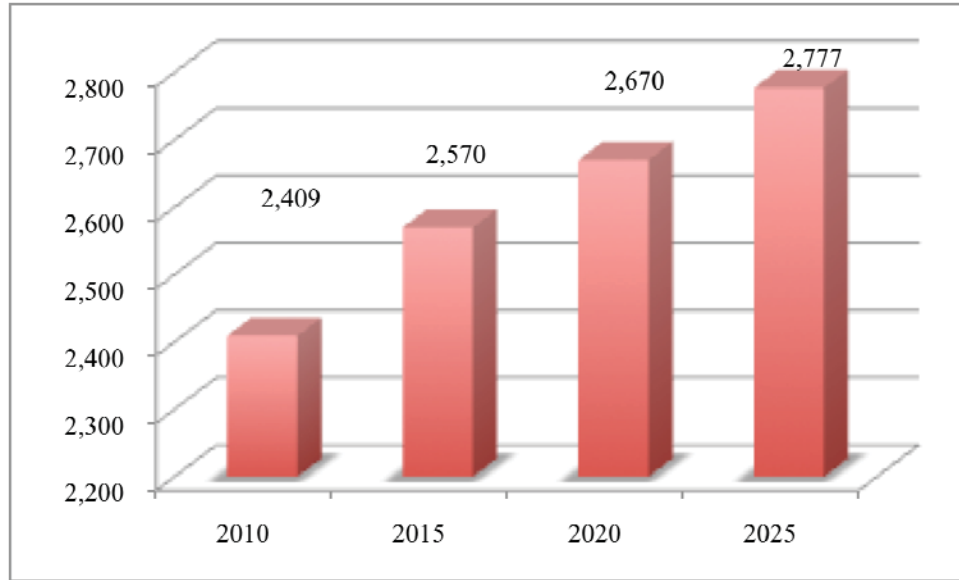
**Indian Wells Valley Online only
Fall Term Weekly Student Contact Hours (WSCH) Forecast**



Source: Cambridge West Partnership, LLC

Consideration was given to tangible trends such as changes in student origins, population growth rate and changes in demographics for establishing the growth projection for future headcounts. The rate of growth in headcount for the on-campus Indian Wells Valley site was established at an annual 1.02% for benchmark years 2015, 2020 and 2025. This growth also represents a reasonable forecast for the on-campus headcount at this College at this time. In any planning cycle, the proposed facilities are time specific and address future needs or capacities that may or may not materialize. The strategic goal is to plan for sufficient facilities that are flexible enough to accommodate additional headcounts.

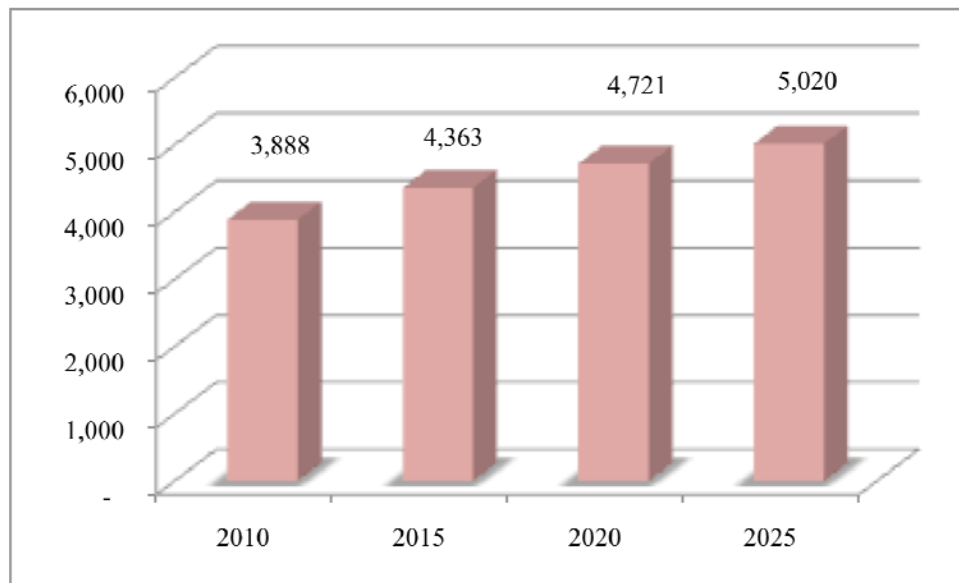
Indian Wells Valley On-Campus only Fall Term Headcount Forecast



Source: Cambridge West Partnership, LLC

Unduplicated headcounts in online classes have been even greater than the on-campus counts. The rate of growth in headcount for the online Indian Wells Valley site was established at an annual 1.94% for benchmark years 2015, 2020 and 2025.

**Indian Wells Valley Online only
Fall Term Headcount Forecast**



Source: Cambridge West Partnership, LLC

Growth as Applied to the Future Program of Instruction

WSCH Projections

State standards for construction and renovation of facilities basically focus on *capacity*. Capacity, as outlined in the Facilities Planning Manual is correlated with the production of WSCH. WSCH represents the average number of hours of student instruction in a week per class (i.e. 30 students enrolled in a class that meets 3 hours per week is 90 WSCH). Estimating growth in headcounts produces a factor of increased WSCH. This WSCH is then transformed into instructional space or assignable square feet (ASF). Each space type, in this case lecture and/or laboratory, WSCH generates an “appropriate” instructional facility addressed as ASF. While these calculations are established through state standards, other factors must be considered in planning facilities. An additional factor in all planning is *adequacy*. Adequacy in this context assumes sufficient and/or suitable capacity to provide for an effective learning environment.

WSCH Projections and the Future Program of Instruction

The following table projects future WSCH and FTES in benchmark years of 2015, 2020, and 2025. The forecast is in summary form by educational centers and main campus of the College. The actual forecasting process, however, was conducted at the discipline/program level. A comprehensive analysis by discipline/program can be found in the Appendix.

Cerro Coso College - Indian Wells Valley WSCH/FTES Projections 2010-2025

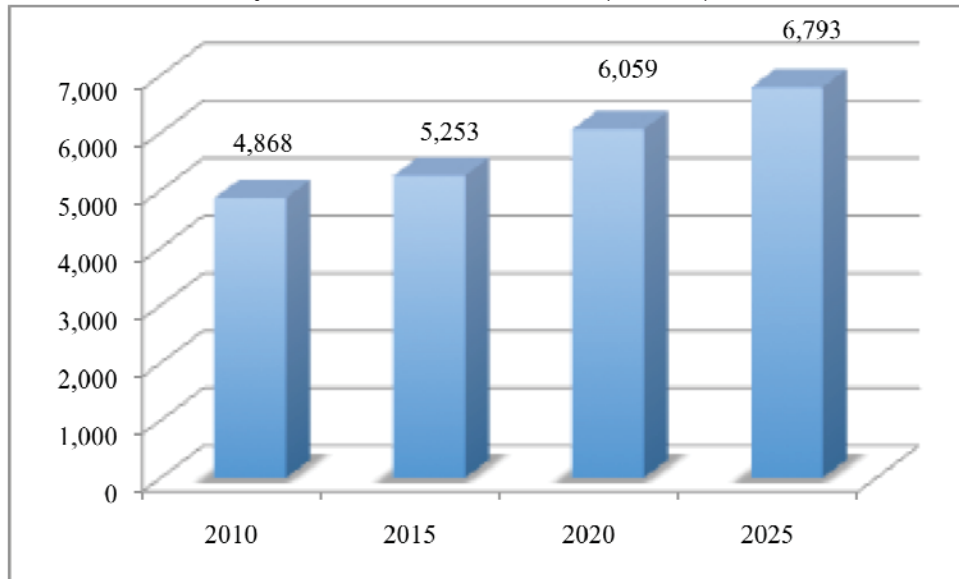
Profile	Actual			Projected								
	Fall Sem 2010			2015			2020			2025		
	# of Sec	WSCH	FTES	# of Sec	Total WSCH	Total FTES	# of Sec	Total WSCH	Total FTES	# of Sec	Total WSCH	Total FTES
Liberal Arts												
<i>Academic Development</i>	17	2,288.8	71.1	20	2,574.9	79.9	24	3,044.1	94.5	29	3,600.3	111.8
<i>English</i>	7	807.15	25.1	8	908.1	28.2	9	1,073.5	33.3	11	1,269.6	39.4
<i>Humanities</i>	8	1012.4	31.4	8	1,218.8	37.8	8	1,346.6	41.8	12	1,592.6	49.5
<i>Counseling/Library Research</i>	5	292.0	9.1	5	328.5	10.2	6	388.4	12.1	7	459.3	14.3
<i>Mathematics</i>	11	1,413.18	43.9	11	1,589.8	49.4	11	1,879.6	58.4	13	2,223.0	69.0
<i>Social Sciences</i>	13	1,232.1	38.3	13	1,386.1	43.0	13	1,638.7	50.9	15	1,938.4	60.2
<i>Physical Education</i>	26	2,337.9	72.6	26	2,630.3	81.7	27	3,109.5	96.5	32	3,677.5	114.2
<i>Science</i>	13	1,834.2	56.9	15	2,063.7	64.1	17	2,439.4	75.7	18	2,885.3	89.6
<i>Visual & Performing Arts</i>	9	975.9	30.6	9	1,109.1	34.4	10	1,311.3	40.7	12	1,550.8	48.1
Career & Technical Education												
<i>Business & Computer Science</i>	10	721.96	22.4	10	812.1	25.2	10	960.2	29.8	13	1,135.6	35.3
<i>Child Development</i>	3	73.34	2.5	3	83.6	2.9	3	108.3	3.7	3	128.1	4.4
<i>Industrial Arts</i>	13	1330.2	41.29	15	1,496.4	46.5	17	1,769.2	54.9	21	2,092.6	65.0
<i>Media Arts</i>	3	237.86	7.4	3	267.6	8.3	3	316.4	9.8	3	375.0	11.6
<i>Public Services</i>	76	2404.7	74.66	76	2,705.0	84.0	76	3,198.3	99.3	77	3,782.7	117.4
Campus Total	214	16,962	527.0	222	19,174	595.8	234	22,573	700.8	266	26,669	829.1
Online Program	212	23,424.0	727.3	222	26,371.4	818.8	242	28,273	877.8	255	30,309.3	941.0
Grand Total	426	40,386	1,254.3	444	45,537	1,414.0	476	50,846	1,679.8	521	56,978	1,770.0

CAMPUS		ONLINE	
2015 - WSCH 19,174		2015 - WSCH 26,371	
a) Net Class Sections Offered	222	a) Net Class Sections Offe	222
b) Enrollments	2,570	b) Enrollments	4,369
c) Full-time Equivalent Students	595	c) Full-time Equivalent St	819
d) WSCH/Enrollment	7.46	d) WSCH/Enrollment	6.04
2020 - WSCH 22,573		2020 - WSCH 28,273	
a) Net Class Sections Offered	234	a) Net Class Sections Offe	242
b) Enrollments	2,670	b) Enrollments	4,721
c) Full-time Equivalent Students	701	c) Full-time Equivalent St	878
d) WSCH/Enrollment	8.46	d) WSCH/Enrollment	5.99
2025 - WSCH 26,669		2025 - WSCH 30,389	
a) Net Class Sections Offered	266	a) Net Class Sections Offe	255
b) Enrollments	2,777	b) Enrollments	5,020
c) Full-time Equivalent Students	829	c) Full-time Equivalent St	941
d) WSCH/Enrollment	9.62	d) WSCH/Enrollment	6.04

Source: Cambridge West Partnership, LLC

Considering the economic and fiscal factors, the growth projection for the on-campus Weekly Student Contact Hours (WSCH) at the Kern River Valley-South Kern Center was established at an annual 2.64% for benchmark years 2015, 2020 and 2025.

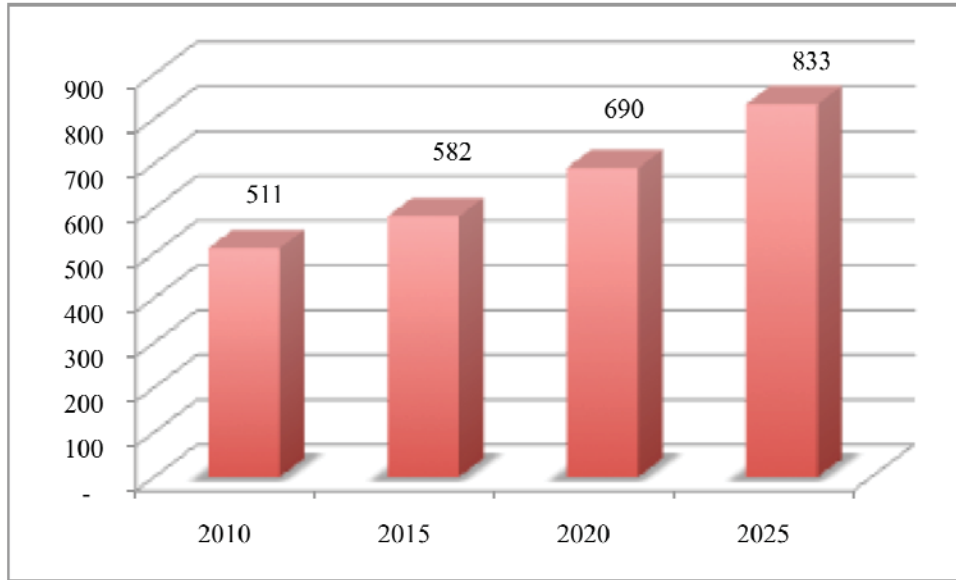
**Kern River Valley-South Kern Center Fall Term
Weekly Student Contact Hours (WSCH) Forecast**



Source: Cambridge West Partnership, LLC

The rate of growth in headcount for the Kern River Valley-South Kern Center was established at an annual 4.19% for benchmark years 2015, 2020 and 2025.

Kern River Valley-South Kern Fall Term Headcount Forecast



Source: Cambridge West Partnership, LLC

Cerro Coso College - Kern River Valley-South Kern
 WSCH/FTES Projections Summary 2010-2025

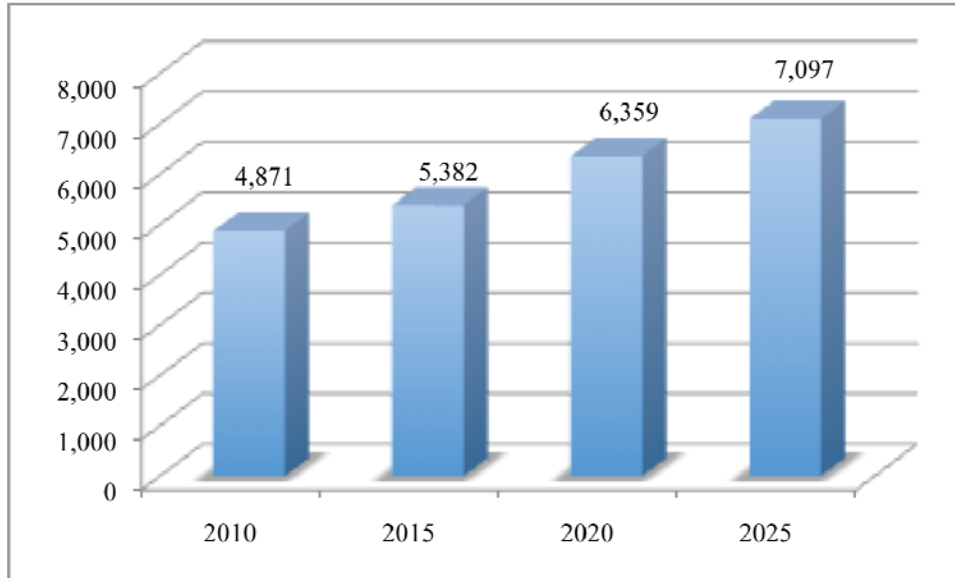
Profile	Actual			Projected								
	Fall Sem 2010			2015			2020			2025		
	# of Sec	WSCH	FTES	# of Sec	Total WSCH	FTES	# of Sec	Total WSCH	FTES	# of Sec	Total WSCH	FTES
KRV/South Kern												
<i>Kern River Valley</i>	49	4,424.5	137.4	53	4,725.8	146.7	62	5,297.0	94.5	65	5,765.1	179.0
<i>South Kern</i>	5	443.30	13.8	5	526.9	16.4	9	762.4	33.3	11	1,028.1	31.9
Center Total	54	4,868	151.2	58	5,253	163.1	71	6,059	127.8	76	6,793	210.9

CAMPUS	
2015 - WSCH 5,252	
a) Net Class Sections Offered	58
b) Enrollments	582
c) Full-time Equivalent Students	163
d) WSCH/Enrollment	9.02
2020 - WSCH 6,059	
a) Net Class Sections Offered	71
b) Enrollments	690
c) Full-time Equivalent Students	188
d) WSCH/Enrollment	8.78
2025 - WSCH 6,793	
a) Net Class Sections Offered	76
b) Enrollments	833
c) Full-time Equivalent Students	211
d) WSCH/Enrollment	8.16

Source: Cambridge West Partnership, LLC

Considering the economic and fiscal factors, the growth projection for the on-campus Weekly Student Contact Hours (WSCH) at the Eastern Sierra Center was established at an annual 3.05% for benchmark years 2015, 2020 and 2025.

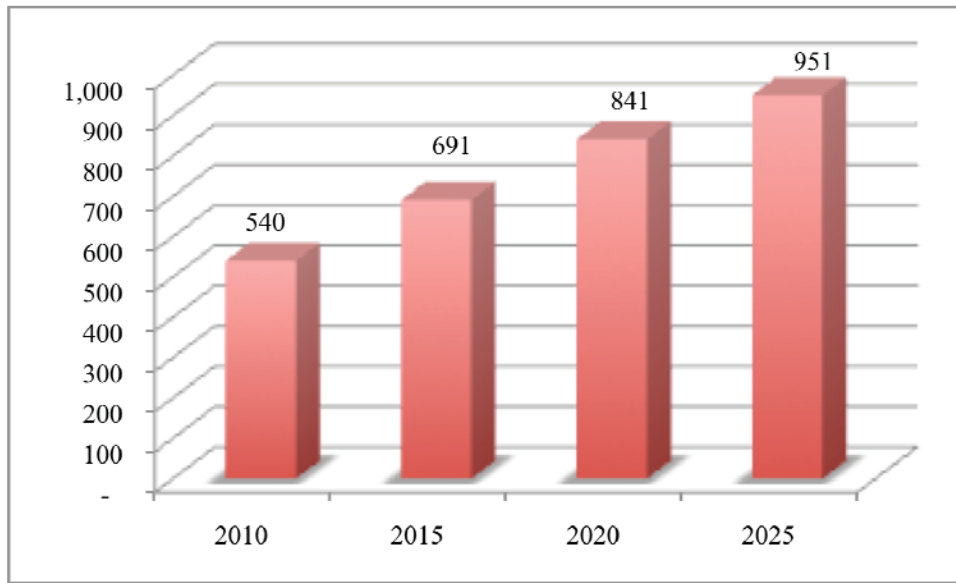
**Eastern Sierra Center Fall Term
Weekly Student Contact Hours (WSCH) Forecast**



Source: Cambridge West Partnership, LLC

The rate of growth in headcount for the Eastern Sierra Center was established at an annual 5.07% for benchmark years 2015, 2020 and 2025.

Eastern Sierra Center Fall Term Headcount Forecast



Source: Cambridge West Partnership, LLC

Cerro Coso College - Eastern Sierra Center WSCH/FTES

Projections Summary 2010-2025

Profile	Actual			Projected								
	Fall Sem 2010			2015			2020			2025		
Location	# of Sec	WSCH	FTES	# of Sec	Total WSCH	Total FTES	# of Sec	Total WSCH	Total FTES	# of Sec	Total WSCH	Total FTES
Eastern Sierra Center												
<i>Bishop</i>	35	2,524.5	78.4	38	2,776.8	86.2	44	3,490.7	108.4	48	3,852.1	119.6
<i>Mammoth Lakes</i>	24	2,346.5	72.9	28	2,604.7	80.9	33	2,868.0	89.0	37	3,244.7	100.7
Center Total	59	4,871.0	151.3	66	5,381.5	167.1	77	6,358.7	197.4	85	7,096.8	220.3

CAMPUS	
2015 - WSCH 5,382	
a) Net Class Sections Offered	66
b) Enrollments	691
c) Full-time Equivalent Students	167
d) WSCH/Enrollment	7.78
2020 - WSCH 6,359	
a) Net Class Sections Offered	77
b) Enrollments	841
c) Full-time Equivalent Students	197
d) WSCH/Enrollment	7.56
2025 - WSCH 7,097	
a) Net Class Sections Offered	85
b) Enrollments	951
c) Full-time Equivalent Students	220
d) WSCH/Enrollment	7.46

Source: Cambridge West Partnership, LLC

Determination of Future Space Needs

Space Requirements for the Academic Program

WSCH and Space Projections

State standards for construction and renovation of facilities basically focus on *capacity*. Capacity, as outlined in the Facilities Planning Manual is correlated with the production of WSCH. WSCH represents the average number of hours of student instruction in a week per class (i.e. 30 students enrolled in a class that meets 3 hours per week is 90 WSCH). Estimating growth in enrollments produces a factor of increased WSCH. This WSCH is then transformed into instructional space or assignable square feet (ASF). Each space type, in this case lecture and/or laboratory, WSCH generates an “appropriate” instructional facility addressed as ASF. While

these calculations are established through state standards, other factors must be considered in planning facilities. An additional factor in all planning is *adequacy*. Adequacy in this context assumes sufficient and/or suitable capacity to provide for an effective learning environment.

Space Projections

An assessment of the current facilities includes the capacity of the instructional program to meet programmatic needs, it reviews the condition of the facilities, and it addresses their adequacy to provide for an effective learning environment. The projections are not intended to dictate curricular content but rather to provide a perspective of what the current curriculum would look like if extended forward. The most important outcome of the forecasting process is to ensure that when a certain level of WSCH is achieved, the College will have in place designated and/or newly constructed facilities to meet demands in both academic and support services.

Space Projections and the Future Program of Instruction

The following table projects future space needs (ASF) in benchmark years 2015, 2020, and 2025. The forecast is in summary form by instructional divisions of the College. The actual forecasting process, however, was conducted at the discipline/program level. A comprehensive analysis by discipline/program can be found in the Appendix of the Facilities Master Plan.

Cerro Coso College - Main Campus Space Allocation Summary Projections 2010-2025

Department	Current				Projected								
	Fall Sem 2010				2015			2020			2025		
	Lec ASF	Lab ASF	Other ASF	Total ASF	Lec ASF	Lab ASF	Total ASF	Lec ASF	Lab ASF	Total ASF	Lec ASF	Lab ASF	Total ASF
Liberal Arts													
<i>Academic Development</i>					1,155	245	1,400	1,366	236	1,602	1,615	279	1,894
<i>English</i>					372	183	555	440	216	656	520	256	776
<i>Humanities</i>					426	820	1,246	459	969	1,428	542	1,148	1,690
<i>Counseling/Library Research</i>					155	0	155	184	0	184	217	0	217
<i>Mathematics</i>					752	0	752	889	0	889	1,052	0	1,052
<i>Social Sciences</i>					656	0	656	775	0	775	917	0	917
<i>Physical Education</i>					235	6,848	7,083	278	8,095	8,373	329	9,574	9,903
<i>Science</i>		2,480	3,077	5,507	442	2,718	3,160	523	3,213	3,736	618	3,800	4,418
<i>Visual & Perform Arts</i>		5,753	4,264	10,017	483	0	483	571	0	571	675	0	675
Career & Technical Education							0			0			0
<i>Business & Comp Sci</i>			1,441	1,441	205	635	840	243	751	994	287	888	1,175
<i>Child Development</i>					36	0	36	40	0	40	55	0	55
<i>Industrial Arts</i>		6,065	2,100	8,165	426	2,149	2,575	504	2,541	3,045	596	3,004	3,600
<i>Media Arts</i>					127	0	127	150	0	150	177	0	177
<i>Public Services</i>			1,993	1,993	1,030	1,131	2,161	1,217	1,415	2,632	1,440	1,673	3,113
<i>General Lecture Rms</i>	7,174		1,848	9,022									
Campus Total	7,174	17,732	11,239	36,145	6,500	14,729	21,229	7,639	17,436	25,075	9,040	20,622	29,662

CERRO COSO - MAIN CAMPUS	
2010 - Current ASF Available for Instruction	
a) Total ASF	36,145
b) Lecture ASF	7,174
c) Laboratory ASF	17,732
d) Other	11,239
2015 - Assignable Square Feet	
a) Total ASF	21,229
b) Lecture ASF	6,500
c) Laboratory ASF	14,729
2020 - Assignable Square Feet	
a) Total ASF	25,075
b) Lecture ASF	7,639
c) Laboratory ASF	17,436
2025 - Assignable Square Feet	
a) Total ASF	29,662
b) Lecture ASF	9,040
c) Laboratory ASF	20,622

Source: Cambridge West Partnership, LLC

Cerro Coso College – Eastern Sierra Center
Space Allocation Summary Projections 2010-2025

Location	Current				Projected								
	Fall Sem 2010				2015			2020			2025		
	Lec ASF	Lab ASF	Other ASF	Total ASF	Lec ASF	Lab ASF	Total ASF	Lec ASF	Lab ASF	Total ASF	Lec ASF	Lab ASF	Total ASF
Bishop	1,169	4,273	2,760	8,202	835	2,198	3,033	1,042	2,903	3,945	1,158	3,159	4,317
Mammoth Lakes	1,228	3,512	3,109	7,849	843	1,880	2,723	928	2,095	3,023	1,049	2,369	3,418
Campus Total	2,397	7,785	5,869	16,051	1,678	4,078	5,756	1,970	4,998	6,968	2,207	5,528	7,735

EASTERN SIERRA CENTER	
2010 - Current ASF Available for Instruction	
a) Total ASF	16,051
b) Lecture ASF	2,397
c) Laboratory ASF	7,785
d) Other	5,869
2015 - Assignable Square Feet	
a) Total ASF	5,756
b) Lecture ASF	1,678
c) Laboratory ASF	4,078
2020 - Assignable Square Feet	
a) Total ASF	6,968
b) Lecture ASF	1,970
c) Laboratory ASF	4,998
2025 - Assignable Square Feet	
a) Total ASF	7,735
b) Lecture ASF	2,207
c) Laboratory ASF	5,528

Source: Cambridge West Partnership, LLC

Cerro Coso Indian Wells Campus Space Requirements for Support Services

While of modest assignable square feet (ASF), the proposed Student Services facility at the Cerro Coso College, Ridgecrest campus will be adequate to meet the current student enrollment demand and campus needs to the year 2025. However, in the future, there may be additional service areas required to meet specific new programs. The recommended facility allowance does permit comprehensive service and becomes a one-stop center at this campus.

In addition, the location of this facility is directly adjacent to student parking thereby enhancing student access and facilitating direct communication with these services.