CPEC

READY OR NOT, HERE THEY COME

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by Dr. Stacy Wilson, Mallory Newell and Ryan Fuller

The Complete Series of Undergraduate Enrollment Demand and Capacity Projections, 2009–2019

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

A citizen board established in 1974 by the Legislature and Governor to provide them with independent, non-partisan policy analysis and recommendations about California education beyond the high school and to coordinate the efforts of California's colleges and universities in order "to assure the effective utilization of public postsecondary education resources, thereby eliminating waste and unnecessary duplication, and to promote diversity, innovation, and responsiveness to student and societal needs."

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March 10, 2010

Dear Fellow Californians:

The California Postsecondary Education Commission is pleased to present *Ready or Not, Here They Come: The Complete Series of Undergraduate Enrollment Demand and Capacity Projections, 2009–2019.* This series updates our statewide enrollment demand and institutional capacity reports published in 1995, 2000, and 2004. The findings are intended to support higher education long-range planning and assist the Governor and Legislature during budgetary and policy deliberations. The series provides informed projections of the demand for public undergraduate higher education over the next ten years and discusses the sufficiency of classroom lecture and laboratory capacity to accommodate enrollment growth.

CPEC forecasts that California public colleges and universities will be asked to serve nearly 400,000 more undergraduate students in 2019 than they served in 2008. To accommodate this level of growth, we estimate that the higher education systems will need $1.5 billion more in instructional support in 2019 than they received in 2008 through a combination of state apportionments and student fee revenue. The state will also need to backfill for unfunded students who are currently being served by the systems. Our figures reflect an annual average enrollment growth need of $139 million for each of the next ten years; not included here are graduate instructional needs and capital needs.

If this additional funding is not forthcoming, and if the systems implement enrollment cuts as they propose, as many as 278,000 students might lose the opportunity to attend college between 2009 and 2011 alone. Each system will also need to expand its physical capacity to meet enrollment demand. Capacity pressures are already being experienced by 79% of community college districts, 78% of CSU campuses, and by all UC campuses except Merced, the system's newest campus. This report discusses only the operational costs of educating those students; CPEC will provide estimates of the additional capital costs for space needs by early fall.

Today, California is confronting unprecedented economic and fiscal challenges, and the state's Master Plan commitment to educational opportunity is being tested again. CPEC offers this report with findings and conclusions that we believe will help inform difficult decisions and support long-range planning for higher education in the state to meet those challenges and best serve the needs of all Californians.

John Perez
Commission Chair

Karen Humphrey
Executive Director

Foreword – A Call for Prudent Long-Range Planning

Significant economic and political events have unfolded in California and the nation since CPEC released an update of public higher education enrollment demand projections in 2004 and a series of regional enrollment demand studies between 2001 and April 2003. Some circumstances are affecting California's public higher education enterprise now, while the influence of other events will be felt in the near future. These events include:

- President Barack Obama's call for greater college participation and his release of federal stimulus dollars to support college access.
- Governor Schwarzenegger's 2010 State of the State address calling for gradually increasing higher education funding to at least 10% of the General Fund.
- California State University's innovative recruitment efforts, one of which seeks to increase the representation of Black students by disseminating admission information at predominately Black churches.
- The University of California's scholastic eligibility component that seeks to increase the enrollment of students from low-performing high schools. This grants admission to students who place within the top 4% of their graduating class on UC college preparatory subjects.
- A projected two-year state budget deficit of nearly $20 billion and a federal deficit of $1.6 trillion.
- A gradual economic recovery that is beginning to post recovery statistics in major sectors.
- The establishment of a joint legislative committee to revisit California's Master Plan for Higher Education.

Although the Governor's January message is grounds for the higher education systems to embrace a degree of optimism regarding future funding levels, the next 18 months will be challenging for public colleges and universities. To say that California's public higher education systems will find it difficult to meet student demand in the near term could be considered an understatement. During 2008–09, the systems report that they served collectively 78,000 full-time-equivalent students for which they did not receive state support.

As a result of the present economic circumstances and reduced state support, the systems are finding it necessary to raise fees, furlough faculty and staff, reduce course offerings, accept fewer students, and reduce overhead costs by eliminating or consolidating staff positions. While the challenges are enormous, they are not entirely new. Higher education institutions faced similar challenges during the recessions of the early 1990s and 2000s.

CPEC believes that prudent long-range planning, with a focus on enrollment demand, institutional capacity, and operational and capital costs, is imperative to promote student success, as California recovers from the current recession.

Ready or Not, Here They Come: The Complete Series of Public Higher Education Enrollment Demand, 2009–2019, is in response to the call for prudent higher education planning. CPEC believes that the report findings and analyses will be beneficial to the higher education community, the Governor

and the Legislature during budgetary and policy deliberations, the legislative committee that is revising the California Higher Education Master Plan, industry and labor market officials and employers, and the general public.

The report addresses the following questions:

- What is the level of undergraduate demand anticipated between 2008 and 2019 by higher education system and ethnicity?
- What level of public investment is required to fully fund forecasted undergraduate enrollment demand over the next ten years?
- What is the magnitude of the educational opportunity gap that might result if the state does not fully fund undergraduate enrollment demand in the near term?
- What are the economic and social implications and consequences of not fully funding undergraduate enrollment demand?
- What is the amount of additional lecture and laboratory space needed by higher education system to meet enrollment growth over the next ten years? What are the required capital investment costs by higher education system?
- What cost-cutting efficiencies should be explored as viable alternatives to constructing new classroom facilities?

Although CPEC is responsible by law for statewide higher education planning and coordinating, it remains the intent of the Legislature that CPEC undertake its statutory obligations in consultation with the public and independent systems of higher education.

CPEC appreciates the cooperation of the systems in providing valuable information, analyses, and enrollment demand modeling recommendations that were necessary to produce this report. Special thanks is extended to Dr. Philip Garcia, Director of the CSU Analytic Studies Division, who demonstrated how an actuarial analysis using life tables of persistence and graduation rates could be used reliably to simulate the enrollment behavior of students from initial entry into the CSU and UC systems to final departure from the systems.

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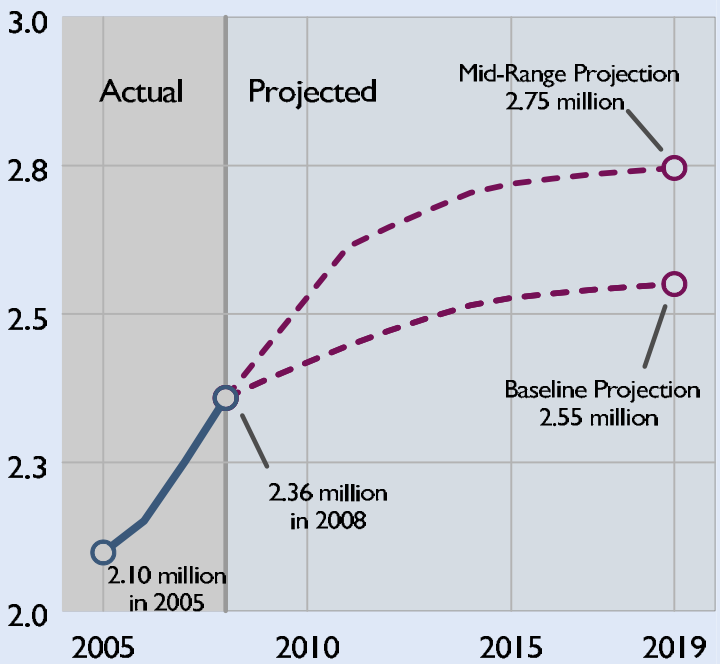
Research Questions and Findings

What is the level of public undergraduate enrollment demand anticipated between 2008 and 2019, by system and ethnicity?

The Commission's Mid-Range Forecast indicates that total undergraduate enrollment demand is expected to increase from 2.36 million students in fall 2008 to 2.75 million students by fall 2019, representing a 16.4% increase and 387,000 additional students. About half of the projected increase is due to population growth and the remainder due to anticipated improvements in college-going rates. If those rates were to remain constant over the projection period, an unlikely scenario, demand would be expected to total 2.55 million by 2019, representing an 8.1% increase and 191,000 additional students, as shown by the Baseline Forecast in Figure 1.

CPEC encourages the Governor, the Legislature, and the higher education systems to undertake higher education planning based on the Mid-Range Forecast, because little empirical evidence exists indicating that college-going rates might remain flat over the next ten years.

Figure 1 Projected Total Undergraduate Demand, 2009–2019



Factors that will boost undergraduate participation rates include the following, and those highlighted in the Foreword:

- Significant job losses occurring in the state which is associated with an increasing number of residents returning to the community colleges to train for new careers and occupations.
- School reform efforts, including teacher development, aimed at increasing college and university readiness.
- Federal stimulus dollars and programs made available by the Obama Administration to significantly enhance college going.
- Economic analyses and public policy papers calling for California to increase baccalaureate degree production to meet vital workforce and labor needs as the state recovers from the current recession.

The display below shows undergraduate demand by higher education system. Community college demand increases by 17.2%, or 313,263 additional students; CSU by 15%, or 53,880 additional students; and UC by 11.7%, or 20,243 additional students.

Display 2 shows the increase in undergraduate demand by system and ethnicity. If the state had adequate operational and capital resources to fully fund undergraduate demand, significant progress would be made in the representation of African American and Latino students. Latino demand would increase by 313,744, or 42.3%, and African American by 13,331, or 7.5%.

Asian students have the highest eligibility rates and demand for this ethnic group is shown to increase by 77,428 students, or 16.7%. American Indian demand increases by 14.4%. The White/Other category declines slightly, coinciding with a projected population decline of 883,728 for persons age 14–49.

Display 1 Mid-Range Forecast, Public Higher Education Undergraduates, 2008–2019

Fall	Community colleges	CSU	UC	Total
2008	1,823,516	362,226	172,775	2,358,517
2009	1,897,197	370,371	176,284	2,443,852
2010	1,969,143	378,910	179,960	2,528,013
2011	2,041,666	387,863	183,811	2,613,340
2012	2,060,953	397,253	187,850	2,646,056
2013	2,076,558	407,099	192,086	2,675,743
2014	2,090,152	417,442	196,448	2,704,042
2015	2,103,820	419,572	195,880	2,719,272
2016	2,113,684	419,405	194,621	2,727,710
2017	2,122,914	418,730	193,701	2,735,345
2018	2,130,174	417,309	193,254	2,740,737
2019	2,136,779	416,106	193,018	2,745,903
Percent change	17.2%	14.9%	11.7%	16.4%
Additional students	313,263	53,880	20,243	387,386

Display 2 Mid-Range Forecast, Differences in Undergraduate Demand between 2008 and 2019

	American Indian	Asian	Black	Latino	White/Other
Community colleges	2,527	53,633	10,286	245,536	1,281
CSU	371	12,171	2,760	52,571	–13,993
UC	116	11,624	285	15,637	–7,419
Total increase	3,014	77,428	13,331	313,744	–20,131
Percent change	14.4	16.7	7.5	42.3	–2.1

Differences are measured by subtracting the 2008 actual undergraduate enrollment from the 2019 estimate.

What level of public investment is required to fully fund the forecasted undergraduate enrollment demand over the next ten years?

During sound budget and fiscal years, the state uses a measure of marginal cost to capture the instructional costs associated with enrolling each additional FTES. Costs directly related to instruction include faculty salaries and benefits, student–faculty ratios, and instructional equipment, as well as indirect instructional costs incurred by enrollment growth, such as library services and administrative activity. Instructional costs vary by higher education system, as does the marginal cost measure, which is derived through consultations with the higher education systems, the Department of Finance, and the Legislative Analyst's Office.

During the 2008–09 academic year the agreed-upon marginal cost rate for UC was approximately $11,000 and $10,426 for CSU. Legislation passed in 2006 established a new funding system for allocating state apportionment revenues to community college districts. Commencing with the 2006–07 fiscal year, districts are to receive $4,376 per FTES for credit instruction, $2,626 per FTES for non-credit instruction, and $3,092 per FTES for career development and college preparation instruction. The figures are to be adjusted annually if cost-of-living adjustments are provided in the state's annual Budget Act.

During lean budget years, higher education systems rarely receive appropriate funding to support the additional FTES served. In 2008–09 the community college system was over-enrolled by approximately 53,000 FTES and received no General Fund support. UC was overenrolled by 11,000 and CSU by 14,000. The good news is that the Governor's 2010–11 budget proposes to increase higher education funding by 3.5% after backfilling for $620 million in one-time cuts.

Display 3 Mid-Range Forecast – Marginal Cost Between 2008–09 and 2019–20

System	Additional Headcount	Additional FTES	2008 Marginal Cost per FTES	$ – millions	11-year average
Community colleges	313,263	225,549	$4,247	$957.9	$87.1
CSU	53,880	44,720	$8,029	$359.1	$32.6
UC	20,243	19,170	$11,000	$210.9	$19.2
Totals	387,386	289,439	—	$1,528.0	$139.0

Amounts shown are adjusted to 2008. Community college marginal cost reflects a weighted mean of credit, non-credit, and career development instruction.

Given the complexity of current budget issues, it is not clear if the Legislature will adopt the Governor's January proposal. The marginal cost analysis presented in Display 3 does not indicate the actual funding levels the systems are likely to receive to support enrollment growth over the projection period. The analysis offers a reasonable estimate of the additional instructional support needed above 2008–09 budget levels to fund the Commission's Mid-Range Forecast through a combination of General Fund support and student fees.

Because the systems have been serving more students than budgeted, the 2008–09 actual budget levels do not serve well as baseline comparison figures unless they are augmented to capture unfunded FTES. For UC this amounts to an additional $121 million to backfill for 11,000 unfunded FTES. Comparable figures for CSU and the community colleges are $112.4 million and $225.1 million to backfill for 14,000 and 53,000 unfunded FTES, respectively. Once these augmentations are made, the systems will need approximately $1.53 billion more in 2019 than the adjusted 2008–09 General Fund support levels. This works out to an annual average enrollment growth need of $139 million in each of the next ten years. The annual average undergraduate growth needs are $87.1 million for the community colleges, $32.6 million for CSU, and $19.2 million for UC.

There are three considerations that must be weighed carefully when interpreting these findings.

- The data are in constant 2008 dollars. Assuming an annual inflation rate of 2%, the 2019 figure would be $1.87 billion or an annual average growth need of $170 million per year.
- The Mid-Range Forecast indicates that growth in undergraduate demand will be higher during the first part of the projection period, before slowing during the latter years. This means that the systems will need above average growth funds during the first half of the projection period and slightly less enrollment growth funds during the latter projection years.
- The marginal cost analysis does not include graduate enrollment growth needs, nor does it include capital outlay needs to support new facility construction, renovation, and modernization.

What is the magnitude of the educational opportunity gap that might result if the state is unable or unwilling to fully fund undergraduate demand in the near term?

Display 4 below provides an estimate of the potential loss in undergraduate college opportunity between 2009–10 and 2010–11 if the systems begin using various enrollment management practices in response to reduced state support. The losses result if community college districts hold enrollments constant at 2008 levels and CSU carries out plans to reduce enrollments by 40,000 students and UC carries out its plans to reduce first-time freshman enrollments by 2,602 students (2,136 FTES). The total net loss across systems is 282,039 prospective students (210,770 FTES).

The loss in college opportunity would be significantly lower than figures cited here if the Legislature adopts the Governor's 2010–11 higher education enrollment growth plans, or if the systems continue to enroll additional students above state budgeted enrollment growth levels.

Display 4 Potential Loss in Undergraduate College Opportunity

Potential loss in opportunity		Enrollment management
Community colleges	–219,308	May hold enrollments constant at 2008 levels because of uncertain enrollment growth funding.
CSU	–55,823	May reduce enrollments by 40,000 because of budget uncertainties.
UC	–6,908	Freshmen enrollments reduced by 2,256 students (2,136 FTES) during 2009-10 and a proposed additional reduction of 1,584 (1,500 FTES) for 2010-11.
Total Headcount Loss Total FTES Loss	–282,039 –210,770	Opportunity loss could be reduced significantly if the Legislature adopts the Governor's enrollment growth plans.

What are the economic and social consequences of not fully funding undergraduate demand?

A 2005 study by the UC Berkeley Survey Research Center is the only one that systematically estimates the effects of increased college-going and degree completion on a range of economic and social benefits, including lifetime earnings, increased tax revenues, home ownership, incarceration, and state expenditures. The authors offered empirical evidence supporting the claim that greater educational attainment and earning power will produce a windfall for state coffers due to increased revenue from income taxes and decreased spending on social services and incarceration.

If enrollment growth funding is not made available, huge losses in college opportunity emerge. CPEC estimates that nearly 280,000 prospective students might be denied access to postsecondary education by 2010–11, or about 207,000 FTES. Equally troublesome, recent gains in college-going of historically underrepresented ethnic groups could be severely compromised. Because of lower birth rates and recent trends in migration patterns, the Demographic Research Unit of the Department of Finance estimates that the percentage of White California residents — a group that has always exhibited high college-going — will decline by about 11% over the next ten years. The next generations of Californians will be less educated than the present generation unless adequate investments are made to improve the college-going rates of other racial groups.

The UC Berkeley study shows that for every new dollar California invests to get more students through the system, it will receive a net return of $3.[1] The payback is not immediate, but it is surprisingly quick. The report, commissioned by the Campaign for College Opportunity, noted that California would realize a positive balance 10 years after students complete their education. By the time degree completers reach age 35, the state's initial investment would be repaid in full. The study said that "for the next 30 years these individuals spend working until retirement at age 65, they effectively produce a bonus for the state in terms of increased tax contributions."

If the mean net return of $3 per additional instructional dollar expended is applied to the Commission's estimate of $1.5 billion in instructional costs needed to fund demand over the next ten years, the state would reap a bonus in excess of $2.5 billion for its $1.5 billion investment. This figure, however, is tenuous at best, because although the Commission's projected college-going rates are somewhat similar to those used in the UC Berkeley study, the CPEC study holds degree completion rates constant at 2008 observed levels, which are the highest posted to date by the public higher education systems.

CPEC intends to partner with the Campaign for College Opportunity and the UC Berkeley Survey Research Center to derive a valid estimate of the net dollar return to the state for funding growth in undergraduate enrollment demand. The analysis will be based on the Commission's college-going estimates, which are detailed by system, admissions status, ethnicity and age group.

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[1] Brady, H., Hout, M., & Stiles, J. (2005). Return on Investment: Educational Choices and Demographic Change in California's Future. University of California, Berkeley.

What is the amount of additional assignable square feet of lecture and laboratory space needed by the systems to meet enrollment growth over the next ten years? What are the required capital investment costs for each system?

Sufficient lecture and laboratory space is necessary in order for the education systems to deliver high-quality instruction. The Legislature crafted classroom space and utilization standards in 1955 and refined them during the 1960s to guide the development of educational campuses and facilities. Current standards recommend that lecture classrooms be used 53 hours per week, excluding Saturdays, and that each student lecture stations average 15 ASF and be occupied approximately 66% of the time. On average, every 100 ASF of lecture space supports about 15.5 FTES.

Laboratory capacity standards allow for various levels of ASF per station and various occupancy rates, depending on the discipline and course level (i.e., lower division, upper division, graduate). On average, every 100 ASF of lab space supports about 1.5 FTES at the community colleges and about 2.7 FTES at UC and CSU.

Display 5 FTES Lecture and Laboratory Capacity Analysis

	Community colleges	CSU	UC
Projected headcount demand 2019	2,136,779	594,437	238,293
Projected FTES demand 2019	1,538,481	493,382	225,643
Current FTES capacity	1,113,318	344,362	184,470
Additional FTES capacity needed by 2019	425,163	149,020	41,172

UC and CSU projected headcount demand includes graduate and undergraduate FTES.

As a first step in estimating the physical capacity of the systems in meeting enrollment demand, CPEC obtained from each system the current total ASF of lecture and laboratory space by campus. The state-adopted space and utilization standards were used to convert ASF physical capacity to FTES capacity. Each system will need to expand its physical capacity to meet enrollment demand between now and 2019. The capacity section of this report (pages 48–57) provides information for community college districts and for each CSU and UC campus. That analysis reveals that capacity pressures are being experienced by about 79% of the community college districts and CSU campuses and by all of the general UC campuses except UC Merced, which opened in 2004.

CPEC is reviewing the systems' five-year capital improvement plans for estimated costs and the potential increase in FTES capacity supported by those plans. CPEC has requested each system's building and renovation cost per ASF for recent capital projects.

What cost-cutting efficiencies should the systems explore as alternatives to constructing new classroom facilities?

CPEC and the systems agree that addressing institutional capacity requires comprehensive planning that focuses on a range of cost-effective solutions. These include:

- New capital projects with an emphasis on shared facility use
- Distance education arrangements and technology-mediated instruction
- Evening and weekend course offerings
- Instructional practices that help students realize their educational aspirations more quickly. Practices that foster student engagement and discovery, time on task, and self-paced learning tend to make students more proficient learners, thereby reducing time-to-degree.

The systems shared examples regarding capacity efficiencies at a recent CPEC enrollment demand planning meeting. It became clear that there is no method for collecting that information at the systemwide level so that best practices might be shared and adopted statewide. A comprehensive data collection protocol pertaining to efficient capacity practices would make it possible to better interpret relative costs and net savings.

Technology-mediated instruction is no less expensive to deliver than traditional modes of instruction. However, if mediated instruction enhances time-to-degree, there might be potential net operational and capital savings. CPEC will convene another planning meeting with the systems later this year to address design issues and other practical matters that would need to be resolved before a capacity data collection protocol is implemented.

Examples of capacity efficiencies

The UC Merced Fresno Center is shared by UC Merced, CSU Fresno, UC Davis, UC San Francisco, UC Santa Cruz, the State Center Community College District, and community organizations. The facility serves new UC students, prospective transfer students, and middle and high school students from Fresno Unified School District. UC Davis houses their Nurse Practitioner/Physician's Assistant program here. Participation changes according to program offerings. The Merced campus also funds a facility that offers early academic preparation programs, summer courses, lectures, teleconferencing, admissions counseling, and professional development programs.

The UC Riverside Heckmann Center serves projects between CSU San Bernardino and the College of the Desert. Each campus is building to support their programs on adjacent sites in Palm Desert. The goal is to maximize the opportunity for academic programs and joint participation in colloquia, workshops, seminars, and conferences that use all three institutions' facilities.

CSU Bakersfield has operated an off-campus center in the Antelope Valley since the late 1980s. In 1996, the center moved to leased quarters at Antelope Valley College. This was made possible because of a successful partnership. Initial arrangements included a nominal ten-year lease to accommodate four modular buildings; a qualified pool of on-site community college instructors employed as adjunct faculty members when needed; and classrooms and laboratories that are made available to the center by Antelope Valley College and high schools. The relationship has helped the center develop course articulation and transfer agreements for Antelope Valley College students.

California Community Colleges

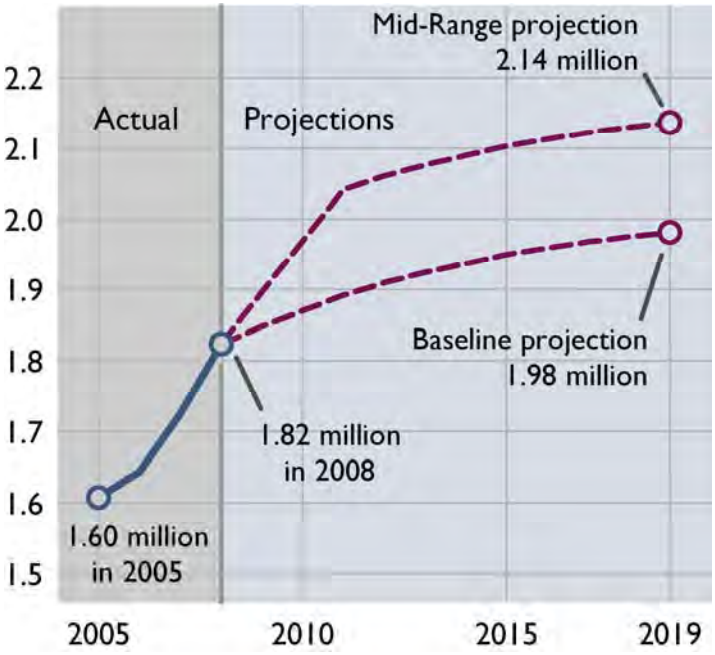
Each person in this photo represents 16,000 additional community college students of all backgrounds expected between 2009 and 2019, if the state provides adequate funding.

Findings

- Community college enrollment demand is expected to increase from 92 students per 1,000 Californians ages 14 to 49 in 2008, to 102 students per 1,000 Californians in 2019.
- The state should prepare for 313,256 additional community college students by 2019 above the fall 2008 peak enrollment level.
- Beginning in fall 2011, the system will be asked for the first time to serve more than 2 million students during each fall term.
- If the system holds enrollments flat at fall 2008 levels because of reduced state support, about 219,000 prospective students might not be served by fall 2010. This figure is referred to as net loss in college opportunity. During 2008–09 the community colleges served about 53,000 FTES for which they did not receive state funding. Once the state backfills for funds owed to community colleges, the system will need an additional $87 million per year in instructional costs to meet enrollment growth.
- 57 of the 72 (79%) community college districts are serving more FTES than recommended by state classroom utilization standards. The current statewide capacity deficit is 192,347 FTES, which could grow to 425,163 FTES by 2019.

Enrollment Demand Analysis

Figure 2 CPEC Mid-Range and Baseline Enrollment Demand, 2009–2019



The Mid-Range Forecast continues upward trends in participation for some age groups for the first three projection years and then holds rates constant for the remaining years. CPEC believes that this forecast is the most likely projection.

The Baseline Forecast holds participation rates constant at 2008 levels for the entire projection period.

The California Community Colleges are the nation's largest higher education system, serving 1.82 million adults and high school seniors. In the 1950s, the community college mission began to evolve to meet California's changing educational, workforce, and economic needs. Presently, the community colleges are responsible for lower-division academic instruction, occupational and career technical training, adult education, remedial and basic skills education, and community service and vocational programs. The system has fully recovered from the decline in enrollments that occurred in 2003, when state support for higher education declined following the 2001–02 recession and community colleges had to increase student fees and drastically reduce course offerings.

Demand Forecast

Community college enrollments have increased dramatically over the past five years. Between 2005 and 2008, fall enrollments grew 14%, from 1.6 million in 2005 to 1.82 million in 2008. The Mid-Range Forecast indicates that demand will increase from 1.82 million to 2.14 million in 2019. This means that the state should prepare at a minimum for 313,000 additional students above the fall 2008 peak enrollment level. Although the community colleges serve nearly 3 million students annually (fall, winter and spring terms combined), beginning in 2011 campuses will be asked collectively to serve more than 2 million students during each fall term.

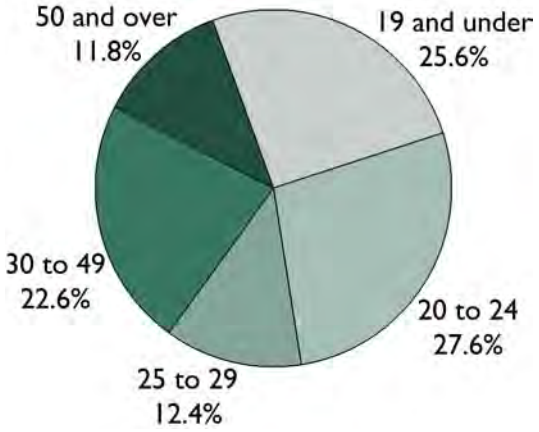
CPEC's community college demand model is a demographic model and uses observed changes in population and other relevant factors and assumptions to project changes in enrollment demand. Enrollment Demand is an estimate of the total number of qualified prospective and continuing students that would enroll in the community college system in a given year at a prevailing student fee level if enrollments were not constrained by state funding.

In contrast, an enrollment projection is an estimate of enrollment the state is able and willing to fund based on budgetary, economic, and fiscal circumstances. When circumstances are favorable, enrollment demand and enrollment projection estimates will yield similar results. When circumstances are less favorable, as during economic recessions, demand estimates will be higher than projection estimates, because by definition, state resources are insufficient to fully meet demand.

About 88% of people who enroll in community college are 14 to 49, an age group expected to grow at a much slower pace than the population as a whole. CPEC staff analyzed historical college enrollments and participation rates by age group and ethnicity. Participation rates represent the proportion of Californians of a particular age group and ethnicity enrolled at a community college. The distribution of community college enrollments by age is shown in Figure 3. Age-group participation was disaggregated by ethnicity because college enrollments vary by ethnicity. Including ethnicity in the enrollment model helps state planners assess the extent to which college opportunity is equitable across ethnicity.

The historical analysis showed that upward trends in college participation over the past eight years were most pronounced for the 14–19, 20–24, and 25–29 age groups. Staff used regression analysis to derive reasonable rates of changes in participation for those age categories. The change rates (slope of the regression line) were continued over the first three years of the projection period and then held constant for the remaining years. Participation rates for the older age group were held constant through the projection period, with few exceptions (see Display 11).

Figure 3 Community College Enrollment by Age Group, 2008



The Mid-Range Projection shown in Display 6 indicates that the percent change in enrollment demand of 17.2% will be a few percentage points higher than the projected change of 14.7% in California's population for persons age 14 and over (see Display 8). The higher rate occurs in part because annual changes in community college enrollments for the past five years have been several percentage points above annual changes in the population ages 14–49. This trend is accounted for in the first three projection years of CPEC's Mid-Range Forecast. Participation rates are held constant thereafter.

The Baseline Forecast, shown in Display 7, is provided as a low alternative in that it holds all participation rates constant at fall 2008 observed levels for the entire projection period. It offers a valid projection of increases in enrollment demand due solely to increases in the college-age population. Enrollment demand is shown to increase from 1.82 million students to 1.98 million students.

Display 6 Community Colleges – Mid-Range Forecast – Enrollment Demand by Ethnicity

	American Indian	Asian	Black	Latino	White, Other	Total
2008	17,045	317,639	146,976	610,403	731,453	1,823,516
2009	17,711	327,918	154,263	648,941	748,365	1,897,197
2010	18,301	338,047	161,129	688,087	763,579	1,969,143
2011	18,914	348,694	167,778	729,434	776,845	2,041,666
2012	19,249	351,454	167,661	749,642	772,949	2,060,953
2013	19,547	353,465	167,078	768,479	767,990	2,076,558
2014	19,797	355,403	166,051	786,478	762,422	2,090,152
2015	19,781	358,757	164,496	804,535	756,251	2,103,820
2016	19,757	361,682	162,750	819,669	749,826	2,113,684
2017	19,716	365,128	161,015	832,943	744,111	2,122,914
2018	19,645	368,254	159,149	844,461	738,664	2,130,174
2019	19,572	371,272	157,262	855,939	732,734	2,136,779
pct change	14.8%	16.9%	7.0%	40.2%	0.2%	17.2%

Asian includes Filipinos and Pacific Islanders.

Display 7 Community Colleges – Baseline Forecast – Enrollment Demand by Ethnicity

	American Indian	Asian	Black	Latino	White, Other	Total
2008	17,045	317,639	146,976	610,403	731,453	1,823,516
2009	17,476	320,682	147,875	629,914	732,616	1,848,564
2010	17,831	323,410	148,295	648,846	732,270	1,870,653
2011	18,205	326,594	148,490	668,574	730,300	1,892,163
2012	18,539	329,318	148,333	686,871	726,918	1,909,979
2013	18,834	331,329	147,844	703,907	722,525	1,924,438
2014	19,086	333,238	146,983	720,209	717,555	1,937,070
2015	19,096	336,420	145,678	736,675	712,004	1,949,873
2016	19,100	339,201	144,202	750,527	706,186	1,959,217
2017	19,089	342,432	142,731	762,767	700,982	1,968,001
2018	19,048	345,363	141,134	773,479	696,005	1,975,028
2019	19,005	348,191	139,505	784,211	690,585	1,981,497
pct change	11.5%	9.6%	-5.1%	28.5%	-5.6%	8.7%

Display 8 Population Projections – 2008–2019, ages 14 and over by Ethnicity

	American Indian	Asian	Black	Latino	White, Other	Total
2008	201,920	3,951,485	1,878,218	10,267,817	14,346,309	30,645,749
2009	207,499	4,027,977	1,891,411	10,581,666	14,372,162	31,080,715
2010	213,006	4,102,993	1,902,337	10,889,220	14,392,506	31,500,062
2011	218,998	4,180,558	1,912,857	11,198,262	14,402,814	31,913,489
2012	224,784	4,255,200	1,921,857	11,499,340	14,407,857	32,309,038
2013	230,537	4,327,721	1,930,131	11,798,468	14,411,787	32,698,644
2014	236,005	4,400,874	1,937,069	12,102,188	14,414,909	33,091,045
2015	240,150	4,478,556	1,942,891	12,429,809	14,419,601	33,511,007
2016	244,196	4,553,643	1,947,078	12,753,067	14,420,514	33,918,498
2017	248,117	4,630,379	1,950,702	13,076,203	14,423,208	34,328,609
2018	251,921	4,706,259	1,953,254	13,397,687	14,424,111	34,733,232
2019	255,658	4,781,897	1,955,603	13,724,708	14,420,596	35,138,462
pct change	26.6%	21.0%	4.1%	33.7%	0.5%	14.7%

Source: California Department of Finance, *Race/Ethnic Population with Age and Sex Detail, 2000–2050.*

Display 9 Population Projections – 2008–2019, Ages 14–49 by Ethnicity

	American Indian	Asian	Black	Latino	White, Other	Total
2008	130,147	2,543,467	1,285,708	8,003,754	7,939,910	19,902,986
2009	131,981	2,560,935	1,281,983	8,192,008	7,851,723	20,018,630
2010	133,591	2,574,931	1,273,653	8,361,375	7,746,944	20,090,494
2011	135,645	2,593,017	1,266,498	8,534,853	7,642,985	20,172,998
2012	137,480	2,608,653	1,258,730	8,696,117	7,539,472	20,240,452
2013	139,350	2,619,373	1,251,252	8,850,103	7,443,277	20,303,355
2014	140,984	2,630,491	1,242,750	9,001,174	7,351,618	20,367,017
2015	141,442	2,646,585	1,232,828	9,170,265	7,271,349	20,462,469
2016	142,022	2,663,054	1,224,823	9,338,407	7,212,155	20,580,461
2017	142,633	2,682,685	1,218,305	9,506,176	7,162,359	20,712,158
2018	143,171	2,699,179	1,211,958	9,668,988	7,113,510	20,836,806
2019	143,670	2,712,961	1,204,914	9,834,654	7,056,182	20,952,381
pct change	10.4%	6.7%	-6.3%	22.9%	-11.1%	5.3%

Adapted from California Department of Finance, *Race/Ethnic Population with Age and Sex Detail, 2000–2050.*

The Mid-Range Forecast shows a small decline of White and Black students because the number of White residents ages 14 to 49 shown in Display 9 is expected to decline over the next ten years by 883,728 and Black residents by 80,794. The decline is due principally to lower birth rates and migration patterns. While CPEC projects increased participation rates for all ethnic groups, increases for Whites and Blacks will be partially offset by declines in the general population.

CPEC has determined that it is reasonable to expect college participation rates to continue to increase at least for the next three years for reasons outlined here.

- An increasing number of residents are returning to the community colleges to train for new careers and occupations as a result of significant job losses occurring in the state, which suggests a continuation of increased enrollment demand. The number of returning community college students has increased by nearly 40%, from 227,139 in fall 2002 to 316,580 in fall 2008.
- Expansion of California's green economy will spur growth in community college training programs that will prepare prospective workers for green jobs.
- A gradual job recovery beginning principally in the latter half of 2010 that will foster enrollment growth in occupational training programs for which the community colleges are a major provider.
- UC and CSU are finding it necessary to increase fees, furlough faculty, and limit future enrollments, which suggests that many students may have to complete their first two years of instruction at a community college before transferring to a university campus.
- The Obama Administration has made higher education a priority and is in the process of implementing federal programs to boost college participation.

College Opportunity

Funding the level of enrollment demand estimated by the Mid-Range Forecast would be manageable if economic conditions were more favorable. The community college system will need on the average an additional $87 million per year to meet enrollment growth after the state backfills for apportionments owed the colleges.

If the systems find it necessary to hold enrollments at fall 2008 levels because of reduced state support, about 219,000 prospective students might not be served by fall 2010 (Display 10). Preliminary 2009–10 data indicate that district enrollments are generally exceeding budgeted FTE enrollment allocations, and the loss in college opportunity will not be as large as estimated here. Even so, the greatest funding challenge will be in the near term, when enrollments are expected to increase at an annual rate of about 3.7%, before tapering off substantially during the latter projection period.

Display 10 Community Colleges – Loss in College Opportunity Worksheet

Fall 2008 headcount enrollment	1,823,516
Fall 2009 Mid-Range forecast	1,897,197
Loss in college opportunity, fall 2009	
(Mid-Range 2009 forecast – fall 2008 enrollment)	–73,681
Fall 2010 Mid-Range forecast	1,969,143
Loss in College Opportunity Fall 2010	
(Mid-Range 2010 forecast – fall 2008 enrollment)	–145,627
Combined loss in college opportunity	
fall 2009 through fall 2010	–219,308

Display 11 Community Colleges – Mid-Range Forecast, Participation per 1,000 Persons

	Am. Indian	Asian	Black	Latino	White, other	Total
Age 14–19						
2008	171	203	142	107	133	129
2009	181	211	147	110	138	133
2010	188	219	153	112	142	137
2011	195	227	159	115	147	140
2012	195	227	159	115	147	140
2013	195	227	159	115	147	140
2014	195	227	159	115	147	140
2015	195	227	159	115	147	140
2016	195	227	159	115	147	140
2017	195	227	159	115	147	140
2018	195	227	159	115	147	140
2019	195	227	159	115	147	140
Age 20–24						
2008	220	296	193	159	173	184
2009	220	303	204	165	177	189
2010	220	310	215	171	182	194
2011	220	317	226	177	186	200
2012	220	317	226	177	186	200
2013	220	317	226	177	186	199
2014	220	317	226	177	186	199
2015	220	317	226	177	186	199
2016	220	317	226	177	186	199
2017	220	317	226	177	186	199
2018	220	317	226	177	186	199
2019	220	317	226	177	186	199
Age 25–29						
2008	128	122	110	74	89	89
2009	131	127	113	78	91	92
2010	134	132	117	81	93	95
2011	137	138	120	84	95	97
2012	137	138	121	84	95	97
2013	137	138	121	84	95	97
2014	137	138	121	84	95	97
2015	137	138	121	84	95	97
2016	137	138	121	84	95	97
2017	137	138	121	84	95	96
2018	137	138	121	84	95	96
2019	137	138	121	84	95	96
Age 30–49						
2008	66	46	61	33	34	37
2009	66	46	63	34	35	38
2010	66	46	66	35	36	39
2011	66	46	69	36	37	40
2012	66	46	69	36	37	40

Display 11 Community Colleges – Mid-Range Forecast, Participation per 1,000 Persons

	Am. Indian	Asian	Black	Latino	White, other	Total
2013	66	46	69	36	37	40
2014	66	46	69	36	37	40
2015	66	46	69	36	37	40
2016	66	46	69	36	37	40
2017	66	46	69	36	37	40
2018	66	46	69	36	37	40
2019	66	46	69	36	37	40
Age 50 +						
2008	27	24	24	14	21	20
2009	27	24	25	14	21	20
2010	27	24	26	14	21	20
2011	27	24	26	14	21	20
2012	27	24	26	14	21	20
2013	27	24	26	14	21	20
2014	27	24	26	14	21	20
2015	27	24	26	14	21	20
2016	27	24	26	14	21	20
2017	27	24	26	14	21	20
2018	27	24	26	14	21	20
2019	27	24	26	14	21	20

The Mid-Range Forecast continues upward trends in participation for some age groups for the first three projection years and then holds rates constant for the remaining years. The Baseline Forecast holds participation rates constant at 2008 levels for the entire projection period.

Overall, community college enrollment demand is expected to increase from 92 students per 1,000 Californians ages 14 to 49 in 2008 to 102 students per 1,000 Californians ages 14 to 49 in 2019.

California State University

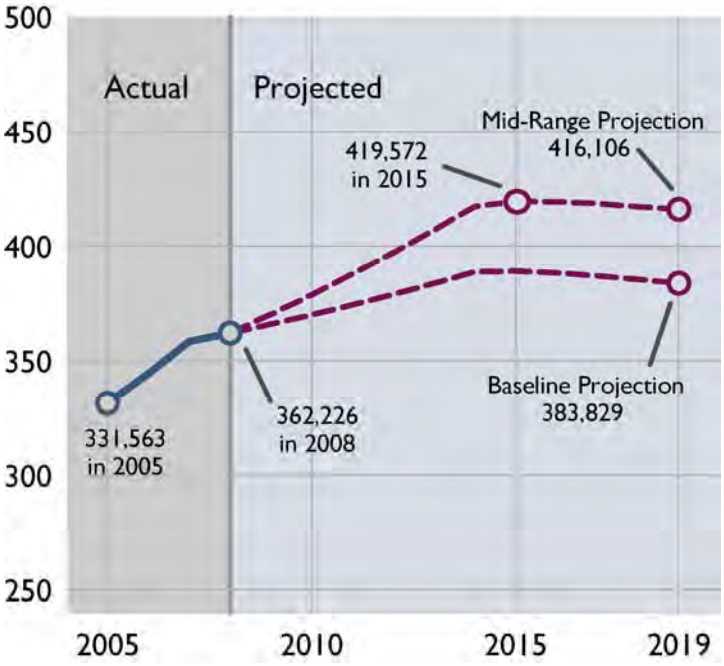
Findings

- Undergraduate enrollment demand is expected to increase from 362,226 students in fall 2008 to 419,572 in fall 2015, representing an overall 15.8% increase and an annual average growth rate of 2% for the seven-year period.
- By 2015 the state should prepare for 57,000 additional undergraduates above the fall 2008 peak enrollment level.
- Beginning in fall 2013, the system will be asked for the first time to serve more than 400,000 undergraduates during each fall term.
- If CSU reduces enrollment by 40,000 over the next two years because of reduced funding, nearly 56,000 prospective students might be denied access to CSU by fall 2011. This latter figure is referred to in this report as the net loss in college opportunity.
- With adequate funding, the state would make significant gains in the representation of Latino and Black students at the university level. The Mid-Range Forecast indicates that between 2008 and 2014, undergraduate demand would increase by 44% for Latinos and by 18.5% for Blacks.

Enrollment Demand Analysis

CSU is the nation's largest four-year public postsecondary system. In fall 2008 its 22 campuses served 362,226 undergraduates and 74,783 graduate or post-baccalaureate students in 200 fields. Just prior to CPEC's 1995 enrollment study, CSU had been hard hit by the recession of the early 1990s that coincided with a loss of 50,000 students and several years of declines in first-time freshmen enrollments. CPEC predicted correctly that CSU would grow again beginning in 1996.

Figure 4 CSU – Mid-Range and Baseline Enrollment Demand, 2009–2019



The Mid-Range Forecast continues upward trends in first-time freshman participation rates for the first three projection years and then holds rates constant for the remaining years. Transfer rates were generally held constant, consistent with historical trends.

The Baseline Forecast holds freshman and transfer participation rates constant at 2008 levels for the entire projection period.

Demand Forecast

CSU undergraduate enrollments grew by 9% between fall 2005 and fall 2008, from 331,563 to 362,226. The Mid-Range Forecast, shown in Figure 4 above, indicates that demand is expected to increase to 419,572 students by fall 2015, representing an overall 15.8% increase and an annual average growth rate of 2% for the seven-year period. The state should prepare at a minimum for 57,000 additional students above the fall 2008 peak enrollment level.

Beginning in fall 2013, the system will be asked for the first time to serve more than 400,000 undergraduates during each fall term. Between 2015 and 2019, undergraduate demand is likely to remain virtually unchanged, due in part to projected declines in the number of public high school graduates, which will impact freshman enrollments, and slower community college growth, which will slow the growth in the number of transfers to CSU.

The Mid-Range Forecast shown in Display 12 is a product of four factors: first-time freshman eligibility rates, freshman participation rates, community college transfer rates, and persistence and graduation rates of enrolled students.

Observed changes in those factors are used to derive estimates of future undergraduate demand. The assumptions and rationales associated with those factors are discussed in the next section. Taken together, the assumptions and rationales provide justification for the Commission's position that the state should plan on the basis of the Mid-Range Forecast.

Display 12 CSU – Mid-Range Forecast – Undergraduate Enrollment Demand by Ethnicity

Fall	American Indian	Asian	Black	Latino	White, Other	Total
2008	2,796	74,174	24,897	101,945	158,414	362,226
2009	2,851	75,544	25,610	107,889	158,477	370,371
2010	2,907	76,940	26,343	114,179	158,541	378,910
2011	2,963	78,362	27,097	120,836	158,604	387,863
2012	3,022	79,810	27,873	127,881	158,668	397,253
2013	3,075	81,284	28,671	135,337	158,731	407,099
2014	3,141	82,786	29,492	143,228	158,795	417,442
2015	3,160	83,780	29,376	146,924	156,332	419,572
2016	2,877	84,278	29,131	149,650	153,469	419,405
2017	3,169	84,769	28,742	150,999	151,051	418,730
2018	3,171	85,637	28,220	152,506	147,775	417,309
2019	3,167	86,345	27,657	154,516	144,421	416,106
pct. change	13.3%	16.4%	11.1%	51.6%	–8.8%	14.9%

Asian includes Filipinos and Pacific Islanders.

Display 13 CSU – Baseline Forecast – Undergraduate Enrollment Demand by Ethnicity

Fall	American Indian	Asian	Black	Latino	White, Other	Total Demand
2008	2,796	74,174	24,897	101,945	158,414	362,226
2009	2,800	74,702	25,405	106,460	156,702	366,068
2010	2,804	75,233	25,924	111,174	155,008	370,142
2011	2,807	75,768	26,453	116,098	153,332	374,459
2012	2,811	76,307	26,993	121,239	151,674	379,025
2013	2,815	76,850	27,544	126,609	150,035	383,853
2014	2,819	77,397	28,106	132,216	148,413	388,951
2015	2,819	77,867	27,858	134,978	145,607	389,129
2016	2,827	78,117	27,567	137,147	142,699	388,357
2017	2,819	78,483	27,163	138,254	140,365	387,084
2018	2,821	79,258	26,672	139,570	137,206	385,527
2019	2,821	79,920	26,155	140,897	134,036	383,829
pct. change	0.9%	7.7%	5.1%	38.2%	–15.4%	6.0%

Asian includes Filipinos and Pacific Islanders.

The Baseline Forecast is considered a low alternative because it holds participation rates for first-time freshmen and community college transfers constant at 2008 levels. It estimates the increase in undergraduate demand due solely to numerical changes in annual public high school graduates and community college enrollments. The Baseline Forecast, Display 13, shows undergraduate demand increasing from 362,226 in 2008 to 383,829 in 2019. The growth represents a 6% increase in enrollment demand, or 21,603 additional students. Without adequate enrollment growth funding, CSU will not be able to support even the low alternative level of demand projected in the Baseline Forecast.

If CSU finds it necessary to reduce enrollments by 40,000, as reported by Chancellor Reed, the number of prospective undergraduates not served could top 56,000 by fall 2011. This latter figure is considered net loss in college opportunity. To catch up, CSU would need at least 3% enrollment growth funding annually until college opportunity is restored.

Enrollment Demand Assumptions and Rationales

Freshman Participation Assumptions

Between fall 2000 and fall 2008, the number of first-time freshmen from California high schools who had met all CSU admission requirements increased 49%, from 32,474 to 48,265. This increase in regularly admissible freshmen as a percentage of total admits is slightly more substantial than CPEC had expected in 1995. Impressive gains were recorded by Black (41.4%) and Latino students (110%). Prior to voter approval of Proposition 209 that eliminated affirmative action admission programs, nearly half of Black and Latino freshmen were admitted by special action.

Public high school graduates account for about 84% of total CSU freshman enrollments, with the remaining 16% of entering freshmen coming from California private schools, out-of-state schools, and foreign schools. This mix of entering freshmen is expected to remain constant throughout the projection period, as it has in the recent past. Of the high school graduating class of 2002, 10.4% entered CSU as freshmen. For the class of 2007, the rate had increased to 12.7%. Given the array of efforts in school reform and teacher professional development, and public policy papers calling for California to boost baccalaureate degree production, CPEC believes that recent improvements in CSU freshman participation will continue at least in the near future.

CPEC staff calculated the changes in participation by ethnicity, extended those rates over three years and held them constant for the remaining years of the projection period. A discussion of the methodology is in Appendix B. The numbers were adjusted upward by 16% to account for students from California private schools, out-of-state schools, and foreign schools.

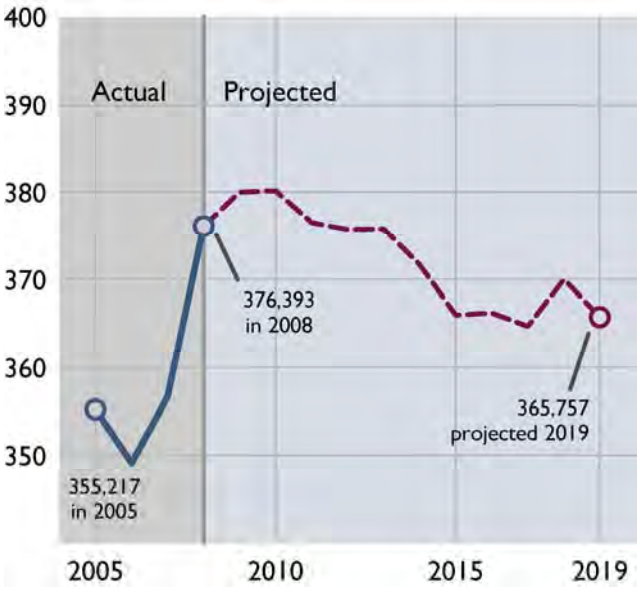
Display 14 indicates that freshman demand is expected to increase by about 5% over the projection period. If participation rates are held constant as shown in Display 15, CSU freshman demand declines 6% by 2019. The decline is associated with the 6% decline in public high school graduates projected by the Department of Finance.

Freshman Persistence and Graduation Assumptions

CSU freshman persistence and graduation rates have improved. Of the 1975 cohort of full-time regularly admissible freshmen, 45.5% persisted to graduation over a 12-year period, with the average time to degree being 5.24 years.

For the 1995 cohort, the rate was 58.1%. CPEC used the persistence and graduation results of the 2000 cohort by ethnicity, covering the eight-year period of 2000–08, to simulate the eight-year persistence and graduation patterns of future cohorts of entering freshmen.

Figure 5 Projected Public High School Graduates, 2009–2019



Source: Department of Finance Demographic Research Unit, California Public K–12 Graded Enrollment and High School Graduate Projections by County, 2009 Series.

Results of the 1995 cohort were used to simulate persistence and graduation patterns for years nine through twelve. Collectively, the 1995 and 2000 cohort data enabled CPEC to simulate 12-year persistence and graduation patterns for the freshman demand projections.

The assumptions regarding freshman participation, persistence, and graduation are organized by ethnic/racial group in Display 16. It is useful for anyone interested in replicating CPEC's undergraduate demand projections.

Display 14 CSU – Mid-Range Forecast – Annual First-Time Freshman Demand

Fall	American Indian	Asian	Black	Latino	White, Other	Total Demand
2008	401	10,498	4,156	17,901	21,579	54,535
2009	405	10,773	4,582	19,468	21,318	56,545
2010	437	11,147	4,706	20,916	21,114	58,321
2011	455	11,469	4,834	22,489	20,971	60,218
2012	462	11,514	4,789	22,803	20,509	60,076
2013	459	11,646	4,572	22,728	20,066	59,470
2014	441	11,797	4,383	22,703	19,351	58,675
2015	434	11,810	4,281	22,550	18,577	57,653
2016	438	11,624	4,259	22,694	18,282	57,297
2017	426	11,708	4,147	22,764	17,981	57,027
2018	427	12,462	4,072	23,155	17,595	57,711
2019	419	12,591	3,975	23,410	17,042	57,437
pct. change	4.4%	19.9%	-4.3%	30.8%	-21.0%	5.3%

Asian includes Filipinos and Pacific Islanders.

Display 15 CSU – Baseline Forecast – Annual First-Time Freshman Demand

Fall	American Indian	Asian	Black	Latino	White/ Other	Total Demand
2008	401	10,498	4,156	17,901	21,579	54,535
2009	370	10,539	4,201	18,468	20,539	54,117
2010	368	10,677	4,069	18,868	19,618	53,600
2011	355	10,759	4,027	19,339	18,815	53,296
2012	361	10,801	3,990	19,609	18,400	53,160
2013	358	10,925	3,809	19,544	18,002	52,639
2014	344	11,067	3,652	19,523	17,361	51,947
2015	339	11,079	3,567	19,392	16,667	51,043
2016	342	10,905	3,549	19,515	16,402	50,713
2017	333	10,983	3,455	19,575	16,132	50,479
2018	333	11,691	3,393	19,912	15,786	51,114
2019	327	11,812	3,312	20,131	15,290	50,871
pct change	–18.4%	12.5%	–20.3%	12.4%	-29.1%	–6.7%

Asian includes Filipinos and Pacific Islanders.

Display 16 CSU – Mid-Range Forecast Assumptions for First-Time Freshmen

Demographic Group	Assumptions
Black	The public high school participation rate for entering Black freshmen is expected to increase from 13.2% to 15.9% by 2019. Approximately 86% are expected to have graduated from California public high schools. About 11.3% are expected to have come from California private high schools and 2.7% from out-of-state high schools. About 39.0% are expected to persist to graduation.
Asian, Filipino, Pacific Islander	The public high school participation rate for entering Asian freshmen is expected to increase from 16.5% to 17.6% by 2019. Approximately 88.2% are expected to have graduated from California public high schools, while about 10.4% are expected to have originated from California private high schools and 1.4% from out-of-state high schools. About 61.0% are expected to persist to graduation.
Latino	The public high school participation rate for entering Latino freshmen is expected to increase from 10.6% to 12.3% by 2019. Approximately 85.4% are expected to have graduated from California public high schools, about 13.8% from California private high schools, and 0.8% from out-of-state high schools. About 52.0% are expected to persist to graduation.
American Indian	The public high school participation rate for entering American Indian freshmen is expected to increase from 11.1% to 14.2% by 2019. Approximately 86.7% are expected to have graduated from California public high schools, while about 10.4% are expected to have originated from California private high schools and 2.9% from out-of-state high schools. About 52.0% are expected to persist to graduation.
White, Other	The public high school participation rate for entering White/Other freshmen is expected to increase from 11.7% to 12.3% by 2019. Approximately 82.7% are expected to have graduated from California public high schools, while about 13.7% are expected to have originated from California private high schools and 4.0% from out-of-state high schools. About 65.3% are expected to persist to graduation.

Community College Transfer Assumptions

The state regards transfer as an important facet of providing educational opportunity leading to the baccalaureate degree. Transfer also provides a second chance at a university-level education for students who did not meet freshman admission requirements.

During the economic boom period of the late 1990s, when universities had sufficient funds to support transfer centers and other outreach programs, there were impressive gains in transfer to UC and CSU by students who had completed 56 units of transferable coursework. More recently, transfer rates have been erratic. However, three ethnic groups — Asian, Black, and White/Other — have experienced modest gains. Those rates were continued over the first years of the projection period, and then held constant for the remaining years. Given the interest of the state and CSU to boost student transfers, it is reasonable to assume that modest improvements would continue if appropriate funding were available.

Display 17 CSU – Mid-Range Forecast – Annual Transfer Demand

Fall	Am. Indian	Asian	Black	Latino	White/Other	Total
2008	466	9,246	3,085	13,634	23,227	49,658
2009	481	9,752	3,390	14,665	24,310	52,598
2010	498	10,256	3,720	15,864	25,430	55,769
2011	514	10,822	4,059	17,280	26,500	59,174
2012	527	11,146	4,218	18,149	26,804	60,845
2013	536	11,430	4,346	18,969	26,916	62,197
2014	545	11,451	4,328	19,701	26,686	62,711
2015	551	11,498	4,275	20,256	26,293	62,873
2016	557	11,527	4,209	20,626	25,839	62,758
2017	562	11,529	4,136	20,832	25,330	62,388
2018	565	11,491	4,057	20,909	24,833	61,855
2019	568	11,425	3,978	20,945	24,352	61,267
pct change	21.9%	23.6%	29.0%	53.6%	4.8%	23.4%

Asian includes Filipinos and Pacific Islanders.

Overall transfer demand increases 23.4%, from 49,658 in 2008 to 61,267 by 2019, as shown in Display 17. Because the community college forecast shows high demand over the first half of the projection period, the number of transfers to CSU will increase as community college enrollments increase, even when transfer rates improve only modestly.

Community college transfers account for about 86% of the entering transfer population. The remaining 14% include students from other California colleges and universities (4.4%), out-of-state institutions (7.5%), and foreign countries (1.8%). Display 18 includes these groups and shows total annual undergraduate transfer demand to CSU increasing from 55,176 in 2008 to 68,074 in 2019. Under more favorable budget circumstances, about 67% of transfers would be expected to begin matriculation in fall terms, with the remainder entering in the winter and spring terms.

If all transfer rates are held constant, as shown in Display 19, transfer demand would increase by about 18%, consistent with the percent change in community college demand. Display 21 shows

the Mid-Range Forecast of new freshmen and transfer undergraduate demand. Display 22 shows transfer rates per 1,000 persons. If CSU is unable to admit students in the winter and spring terms because of reduced state support, significant pent-up demand and a reduction in college opportunity would emerge.

Display 18 CSU – Mid-Range Forecast – Total Annual Transfer Demand

Fall	American Indian	Asian	Black	Latino	White/ Other	Total
2008	517	10,274	3,428	15,149	25,808	55,176
2009	534	10,835	3,767	16,294	27,011	58,442
2010	553	11,396	4,133	17,627	28,256	61,965
2011	571	12,024	4,510	19,200	29,444	65,749
2012	586	12,385	4,687	20,166	29,783	67,606
2013	596	12,700	4,829	21,077	29,907	69,108
2014	606	12,723	4,809	21,890	29,652	69,679
2015	612	12,776	4,750	22,507	29,214	69,859
2016	619	12,807	4,676	22,918	28,710	69,731
2017	625	12,810	4,595	23,146	28,144	69,320
2018	628	12,768	4,508	23,232	27,593	68,728
2019	631	12,694	4,420	23,272	27,057	68,074
pct change	21.9%	23.6%	29.0%	53.6%	4.8%	23.4%

Asian includes Filipinos and Pacific Islanders.

Display 19 CSU – Baseline Forecast – Total Annual Transfer Demand

Fall	American Indian	Asian	Black	Latino	White, Other	Total
2008	517	10,274	3,428	15,149	25,808	55,176
2009	534	10,612	3,657	16,294	26,786	57,883
2010	553	10,938	3,893	17,627	27,785	60,796
2011	571	11,316	4,122	19,200	28,709	63,918
2012	586	11,428	4,163	20,166	28,792	65,134
2013	596	11,496	4,174	21,077	28,660	66,003
2014	606	11,518	4,162	21,890	28,393	66,569
2015	612	11,566	4,122	22,507	27,942	66,749
2016	619	11,597	4,069	22,918	27,427	66,630
2017	625	11,603	4,009	23,146	26,858	66,241
2018	628	11,567	3,943	23,232	26,314	65,684
2019	631	11,501	3,875	23,272	25,796	65,075
pct change	21.9%	11.9%	13.0%	53.6%	0.0%	17.9%

Asian includes Filipinos and Pacific Islanders.

College Opportunity

This section provides an estimate of the loss in college opportunity at the undergraduate level if CSU implements plans to reduce total enrollments by 40,000 over a two-year period (20,000 during spring 2010, and 20,000 during 2010–11). Because these reductions would occur when demand by first-time freshmen, transfers, and graduate students is increasing, the loss in opportunity would be greater than 40,000. CPEC estimates the loss at the undergraduate level to be nearly 56,000.

To calculate college opportunity, it is necessary first to derive an estimate of continuing students. As shown in Display 20, continuing students account for about 70% of total enrollments during a given fall term. New undergraduate and graduate students represent the remaining 30%. Students continuing from fall 2008 total 305,095. This frees up 131,103 seats for new undergraduate and graduate students. If overall enrollments are reduced by 20,000, there would be 111,103 seats available for new students.

Undergraduates represent 83% of total enrollments, so it is reasonable to assume that CSU would reserve 83% of new seats for entering freshmen and undergraduate transfer students. This translates to 92,215 seats. Compared with CPEC's 2009–10 projections, there would be a 22,772 loss in college opportunity by spring 2010.

If CSU reduces enrollments by 20,000 in 2010–11, 87,235 seats would be available for undergraduates. Compared with CPEC's 2010–11 projection of entering undergraduates, there would be a 33,051 loss in college opportunity. The combined loss in opportunity over two years would be 55,823, resulting in significant pent-up demand.

Display 20 Loss in College Opportunity Worksheet

Academic Year 2009–10	
CSU fall 2008 total enrollment	437,008
Continuing student estimate (enrollment x 0.70)	305,905
Available seats before reduction (enrollment – continuing students)	131,103
Available seats after 20,000 student reduction	111,103
Undergraduate share of new seats (seats x 0.83)	92,215
CPEC 2009 freshman and transfer demand forecast	114,987
College Opportunity Loss (seats – demand estimate)	–22,772
Academic Year 2010–11	
CSU Fall 2008 Total Enrollment Reduced by 20,000	417,008
Continuing Student Estimate (enrollment x 0.70)	291,906
Available seats before 20,000 student reduction (enrollment – continuing students)	125,102
Available seats after additional 20,000 student reduction	105,102
Undergraduate share of new seats (seats x 0.83)	87,235
CPEC 2010–11 freshman and transfer demand forecast	120,286
College Opportunity Loss (seats – demand estimate)	–33,051
Combined two-year loss (22,772 + 33,051)	–55,823

Display 21 CSU – Mid-Range Forecast – Annual First-Time Freshmen and Transfers

Fall	American Indian	Asian	Black	Latino	White/ Other	Total Demand
2008	918	20,772	7,584	33,050	47,387	109,711
2009	939	21,608	8,349	35,763	48,329	114,987
2010	991	22,543	8,840	38,543	49,370	120,286
2011	1,026	23,493	9,343	41,689	50,416	125,967
2012	1,048	23,898	9,476	42,969	50,291	127,681
2013	1,055	24,346	9,401	43,805	49,972	128,578
2014	1,046	24,521	9,192	44,593	49,003	128,354
2015	1,046	24,586	9,031	45,057	47,791	127,511
2016	1,056	24,432	8,936	45,612	46,992	127,028
2017	1,051	24,519	8,742	45,910	46,125	126,347
2018	1,055	25,230	8,580	46,387	45,187	126,439
2019	1,049	25,285	8,396	46,682	44,100	125,511
pct change	14.3%	21.7%	10.7%	41.2%	-6.9%	14.4%

Asian includes Filipinos and Pacific Islanders.

Display 22 Mid-Range Forecast – Community College Transfer Participation Rates, per 1,000 Persons

	Am. Indian	Asian	Black	Latino	White, other	Total
Age 14–19						
2008	1	1	1	0	2	1
2009	1	1	1	0	2	1
2010	1	1	1	0	2	1
2011	1	1	1	0	2	1
2012	1	1	1	0	2	1
2013	1	1	1	0	2	1
2014	1	1	1	0	2	1
2015	1	1	1	0	2	1
2016	1	1	1	0	2	1
2017	1	1	1	0	2	1
2018	1	1	1	0	2	1
2019	1	1	1	0	2	1
Age 20–24						
2008	41	45	27	34	60	45
2009	41	46	29	34	60	45
2010	41	47	30	34	60	45
2011	41	49	32	34	60	45
2012	41	50	34	34	60	45
2013	41	51	35	34	60	45
2014	41	51	35	34	60	45
2015	41	51	35	34	60	45
2016	41	51	35	34	60	45

Display 22 Mid-Range Forecast – Community College Transfer Participation Rates, per 1,000 Persons

	Am. Indian	Asian	Black	Latino	White, other	Total
2017	41	51	35	34	60	45
2018	41	51	35	34	60	44
2019	41	51	35	34	60	44
Age 25–29						
2008	23	26	19	21	29	25
2009	23	26	19	21	30	25
2010	23	26	19	21	31	26
2011	23	26	19	21	33	26
2012	23	26	19	21	34	27
2013	23	26	19	21	36	27
2014	23	26	19	21	36	27
2015	23	26	19	21	36	27
2016	23	26	19	21	36	27
2017	23	26	19	21	36	27
2018	23	26	19	21	36	27
2019	23	26	19	21	36	26
Age 30–49						
2008	15	8	14	8	10	10
2009	15	9	14	8	10	10
2010	15	9	14	8	10	10
2011	15	9	14	8	10	10
2012	15	10	14	8	10	10
2013	15	10	14	8	10	10
2014	15	10	14	8	10	10
2015	15	10	14	8	10	10
2016	15	10	14	8	10	10
2017	15	10	14	8	10	10
2018	15	10	14	8	10	10
2019	15	10	14	8	10	10
Age 50 +						
2008	7	2	6	2	2	2
2009	7	2	6	2	2	2
2010	7	2	6	2	2	2
2011	7	2	6	2	2	2
2012	7	2	6	2	2	2
2013	7	2	7	2	2	2
2014	7	2	7	2	2	2
2015	7	2	7	2	2	2
2016	7	2	7	2	2	2
2017	7	2	7	2	2	2
2018	7	2	7	2	2	2
2019	7	2	7	2	2	2

University of California

Findings at a Glance

- Demand at the University of California is expected to increase from 172,775 students in fall 2008 to 196,448 students in fall 2014, representing an overall 13.7% increase and an annual average growth rate of 2.2%.
- The state should prepare for 23,673 additional UC undergraduates by 2014 above the fall 2008 peak enrollment level.
- Between 2015 and 2019 undergraduate demand will likely dip by about 3,000 students, due principally to projected declines in the number of public high school graduates, which will reduce freshman enrollments at UC, and slower community college growth during this period, which will impact the number of annual transfers to UC.
- With adequate funding, the state would make gains in the representation of Latino and African American students at the university level. The Mid-Range Forecast indicates that between 2008 and 2014 Latino demand would increase by 49.0%, and 17.0% by African Americans.
- Asian students have the highest UC freshman eligibility rate, which will boost demand for this group from approximately 71,000 in fall 2008 to 83,000 by fall 2019, a 16.4% increase.

Enrollment Demand Analysis

The University of California is comprised of nine general campuses and one health science campus. In fall 2008, the system served 227,000 students and offered programs in nearly 300 academic disciplines and fields. The Master Plan accords UC the exclusive public responsibility for doctoral education in law, medicine, dentistry, and veterinary medicine. Traditionally, the University had selected its entering freshmen class from the state's top one-eighth of high school graduates. During the 1990s, educators and public officials began to express concern over the disparities that had existed for some time in public instruction across the state's geographic regions and school districts that were know to affect college eligibility. For example, student performance on various standard achievement measures suggests that some schools were more successful than others in promoting student learning and academic success.

To help adjust for differences in the quality of instruction among school districts and geographic regions, UC has expanded the definition of its freshman eligibility pool to include students whose academic performance on traditional college preparatory courses ranks them in the top 4% of their respective graduating senior class. This method of judging student merit and achievement in relation to one's immediate environment and educational circumstances has enhanced the validity and fairness of the university's eligibility pool.

Budget Impacts on Enrollment Growth

Provision 10 of the 2008 Budget Act requested UC to report to the Legislature on the number of students served during the 2008–09 academic year. UC stated that its system had served more than 227,000 FTES, of which 11,000 were unfunded enrollments. Approximately 178,000 undergraduates were enrolled, which included 10,000 unfunded FTES.

The University reminded the Legislature that its system had received enrollment growth funding during each of the previous years, consistent with the Higher Education Compact. In 2008–09, however, its system initially received a workload budget consistent with the Compact, but it was subsequently reduced by 10%, and then partially restored during the Governor's May Revision. Even with the restoration, the system was left with a reported year-over-year reduction of $48 million and no enrollment growth funding.

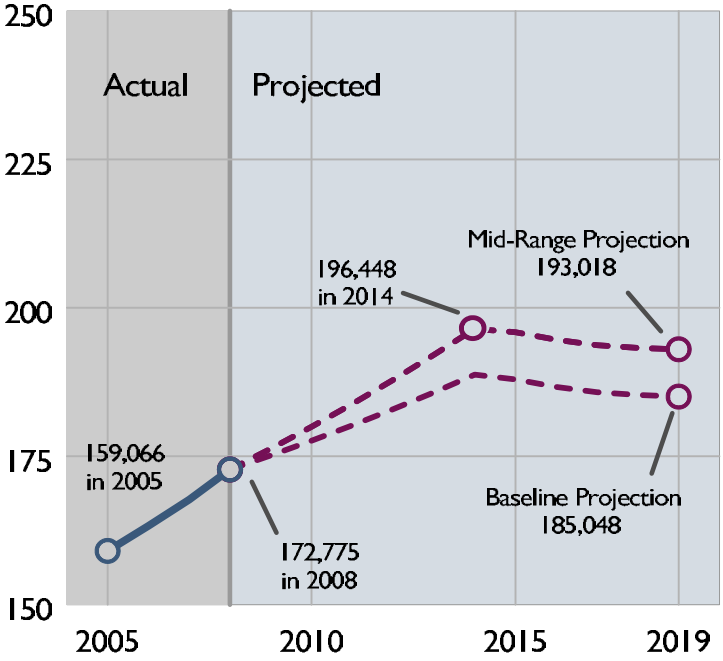
Confronted with reduced state support, UC informed the Legislature of its plans to reduce freshmen enrollments by 2,300 FTES during the 2009–10 academic year, while increasing community college transfer enrollments by 500 FTES. Absent this enrollment management decision of the UC Regents, the University's long-range undergraduate demand forecast would be quite similar to the CPEC Mid-Range demand projection.

Undergraduate Demand Forecast

UC undergraduate enrollments have grown rapidly for the past 15 years, when growth funding was adequate. Between fall 1993 and fall 2008 enrollments increased from 122,271 to 172,775 students, reflecting 50,504 additional students and a 41.3% increase. The Mid-Range Forecast, shown in Figure 6, indicates that undergraduate enrollment demand is expected to continue to increase, albeit more slowly, and reach 196,448 students by fall 2014, representing an overall 13.7% increase and an annual average growth rate of 2.2% for the six-year period.

Following this period, enrollments are shown to decline slightly. The state should prepare at a minimum for 20,243 additional students above the fall 2008 peak enrollment level.

Figure 6 UC – Mid-Range and Baseline Enrollment Demand, 2009–2019



The Mid-Range Forecast continues upward trends in first-time freshman participation rates for the first three projection years and then holds rates constant for the remaining years. Transfer rates were generally held constant, consistent with historical trends.

The Baseline Forecast holds freshman and transfer participation rates constant at 2008 levels for the entire projection period.

The UC Mid-Range Forecast is a product of four principal factors: first-time freshman eligibility rates, freshman participation rates, community college transfer rates, and persistence and graduation rates of enrolled students.

Observed changes in those factors are used to derive estimates of future undergraduate demand. The assumptions and rationales associated with those factors are discussed here. Taken together, they provide justification for the Commission's position that the state should plan on the basis of the Mid-Range Forecast. Display 23 shows the Mid-Range Forecast by ethnicity.

The Baseline Forecast is considered a low alternative because it holds participation rates for first-time freshmen and community college transfers constant at 2008 levels. It estimates the increase in undergraduate demand due solely to numerical changes in annual public high school graduates and community college enrollments. The Baseline Forecast, in Display 24, shows undergraduate demand increasing from 172,775 in 2008 to 185,048 in 2019. The growth represents a 7.1% increase, or 12,273 additional students. Without adequate enrollment growth funding, UC will not be able to support even the low alternative level of demand projected in the Baseline Forecast.

Display 23 UC – Mid-Range Forecast – Undergraduate Enrollment Demand by Ethnicity

Fall	American Indian	Asian	Black	Latino	White, Other	Total Demand
2008	981	70,886	6,125	29,021	65,762	172,775
2009	1,005	72,225	6,286	31,008	65,760	176,284
2010	1,030	73,588	6,452	33,131	65,759	179,960
2011	1,055	74,978	6,622	35,399	65,757	183,811
2012	1,081	76,394	6,796	37,823	65,756	187,850
2013	1,107	77,836	6,975	40,413	65,754	192,086
2014	1,134	79,306	7,159	43,180	65,669	196,448
2015	1,131	79,937	7,001	43,734	64,077	195,880
2016	1,125	80,123	6,842	44,027	62,504	194,621
2017	1,111	80,519	6,692	44,094	61,285	193,701
2018	1,103	81,500	6,547	44,354	59,750	193,254
2019	1,097	82,510	6,410	44,658	58,343	193,018
pct change	11.8%	16.4%	4.7%	53.9%	–11.3%	11.7%

Asian includes Filipinos and Pacific Islanders.

Display 24 UC – Baseline Forecast – Undergraduate Enrollment Demand by Ethnicity

Fall	American Indian	Asian	Black	Latino	White, Other	Total Demand
2008	981	70,886	6,125	29,021	65,762	172,775
2009	988	71,784	6,269	30,682	65,414	175,137
2010	996	72,694	6,417	32,437	65,068	177,612
2011	1,003	73,615	6,568	34,293	64,724	180,203
2012	1,011	74,548	6,722	36,255	64,382	182,918
2013	1,018	75,492	6,880	38,330	64,042	185,762
2014	1,026	76,449	7,042	40,523	63,703	188,743
2015	1,020	76,957	6,883	40,966	62,108	187,934
2016	1,016	77,120	6,725	41,240	60,581	186,682
2017	1,005	77,489	6,578	41,304	59,403	185,779
2018	998	78,417	6,436	41,548	57,919	185,318
2019	990	79,374	6,301	41,826	56,557	185,048
pct change	0.9%	12.0%	2.9%	44.1%	–14.0%	7.1%

Asian includes Filipinos and Pacific Islanders.

Enrollment Demand Assumptions and Rationales

Freshman Participation Assumptions

Between fall 2000 and fall 2008, the number of first-time freshmen from California high schools who had met all UC admission requirements increased from 26,299 to 33,585, representing a 28% change. Prior to voter approval of Proposition 209 in 1996, which eliminated affirmative action admission programs, about 20% of African American and 13% of Latino freshmen were admitted by special action. Presently, nearly all entering freshmen meet the UC admission requirements.

Public high school graduates account for about 83% of total UC freshman enrollments, with the remaining 17% from California private schools, out-of-state schools, and foreign schools. This mix is expected to remain constant throughout the projection period, as it has in the recent past. Of the high school graduating class of 2002, 7.9% entered UC as freshmen. For the class of 2007, the rate had increased to 8.5%. CPEC believes that recent improvements in UC freshman participation will continue at least in the near future because of efforts in school reform and teacher professional development, and public policy papers calling for California to boost baccalaureate degree production.

Display 25 UC – Mid-Range Forecast – Annual First-Time Freshman Demand

Fall	American Indian	Asian	Black	Latino	White, Other	Total Demand
2008	180	15,165	1,500	7,202	13,621	37,668
2009	181	15,458	1,527	7,774	12,901	37,841
2010	187	15,921	1,490	8,191	12,558	38,347
2011	187	16,308	1,485	8,650	12,270	38,900
2012	190	16,371	1,471	8,771	11,999	38,802
2013	189	16,559	1,405	8,742	11,740	38,634
2014	181	16,774	1,347	8,732	11,322	38,356
2015	178	16,793	1,315	8,674	10,869	37,829
2016	180	16,528	1,309	8,729	10,696	37,442
2017	175	16,648	1,274	8,756	10,520	37,373
2018	175	17,720	1,251	8,906	10,294	38,347
2019	172	17,903	1,221	9,004	9,971	38,272
pct change	–4.7%	18.1%	–18.6%	25.0%	–26.8%	1.6%

Asian includes Filipinos and Pacific Islanders.

CPEC calculated changes in participation by ethnicity, extended those rates over three years, and held them constant for the remaining years of the projection period. The numbers were adjusted upward by 17% to account for students from California private schools, out-of-state schools, and foreign schools. As shown in Display 25, freshman demand is expected to increase by about 1.6% over the projection period.

If participation rates are held constant, UC freshman demand is shown to decline 4.4% by 2019, as shown in Display 26. The Demographic Research Unit of the Department of Finance projects the number of public high school graduates to decline by about 6% over the next ten years, which affects UC freshman demand.

Display 26 UC – Baseline Forecast – Annual First-time Freshman Demand, 2009–2019

Fall	American Indian	Asian	Black	Latino	White/ Other	Total Demand
2008	180	15,165	1,500	7,202	13,621	37,668
2009	175	15,200	1,516	7,530	12,655	37,076
2010	174	15,399	1,468	7,693	12,088	36,822
2011	168	15,518	1,453	7,885	11,593	36,617
2012	170	15,578	1,440	7,995	11,337	36,520
2013	169	15,757	1,375	7,969	11,092	36,362
2014	163	15,961	1,318	7,960	10,697	36,099
2015	160	15,979	1,287	7,907	10,269	35,602
2016	161	15,727	1,281	7,957	10,106	35,233
2017	157	15,841	1,247	7,981	9,940	35,167
2018	157	16,861	1,224	8,119	9,726	36,088
2019	154	17,036	1,195	8,208	9,421	36,014
pct change	–14.4%	12.3%	–20.3%	14.0%	–30.8%	–4.4%

Asian includes Filipinos and Pacific Islanders.

Freshman Persistence and Graduation Assumptions

UC freshman persistence and graduation rates have improved. Of the 1985 cohort of full-time regularly admissible freshmen, 72.9% persisted to graduation over a six-year period, with the average time to degree being 4.4 years. For the 1995 cohort, the rate was 76.9%. CPEC used the persistence and graduation results of the 2000 cohort by ethnicity, covering 2000 through 2008, to simulate the eight-year persistence and graduation patterns of future cohorts of entering freshmen.

The assumptions regarding freshman participation, persistence, and graduation are organized by ethnic/racial group in Display27. It is useful for anyone interested in replicating CPEC's undergraduate demand projections.

Display 27 UC – Summary of Mid-Range Forecast Assumptions for First-Time Freshman Demand

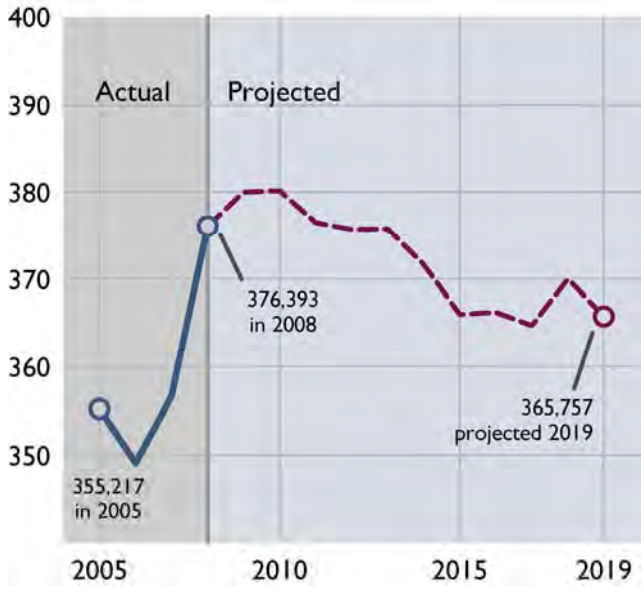
Demographic Group	Assumptions
Black	The public high school participation rate for entering Black freshmen is expected to increase from 4.6% to 4.7% by 2019. Approximately 86.6% are expected to have graduated from California public high schools. About 13.2% are expected to have originated from California private high schools and 0.3% from out-of-state or foreign high schools. About 72.9% are expected to persist to graduation.
Asian, Filipino, Pacific Islander	The public high school participation rate for entering Asian freshmen is expected to increase from 23.3% to 24.4% by 2019. Approximately 90.3% are expected to have graduated from California public high schools, while about 8.5% are expected to have originated from California private high schools and 1.1% from out-of-state or foreign high schools. About 87.6% are expected to persist to graduation.
Latino	The public high school participation rate for entering Latino freshmen is expected to increase from 4.2% to 4.7% by 2019. Approximately 90.0% are expected to have graduated from California public high schools, while about 9.9% are expected to have originated from California private high schools and 0.1% from out-of-state or foreign high schools. About 79.3% are expected to persist to graduation.
American Indian	The public high school participation rate for entering American Indian freshmen is expected to increase from 4.7% to 5.2% by 2019. Approximately 89.6% are expected to have graduated from California public high schools, while about 10.4% are expected to have originated from California private high schools. About 77.6% are expected to persist to graduation.
White/Other	The public high school participation rate for entering White/Other freshmen is expected to increase from 6.9% to 7.3% by 2019. Approximately 79.6% are expected to have graduated from California public high schools, while about 16.2% are expected to have originated from California private high schools and 4.1% from out-of-state high schools. About 86.3% are expected to persist to graduation.

Community College Transfer Assumptions

The state regards the transfer function as an important facet of providing educational opportunity leading to the baccalaureate degree. Transfer also provides a second chance at a university-level education for students who did not meet freshman admission requirements.

During the economic boom of the late 1990s, when universities had sufficient funds to support transfer centers and other outreach programs, there were significant gains in community college transfers to UC and CSU for students who had completed 56 units of transferable coursework. More recently, transfer rates have been erratic. Three ethnic groups — American Indian, Asian, and Blacks — have experienced modest gains in transfer. Those rates were continued over the first years of the projection period, and then held constant for the remaining years, as shown in Appendix B. Given the interest of the state and UC to boost student transfers, it is reasonable to assume that modest improvements would continue if appropriate funding were available.

Figure 7 Projected Public High School Graduates, 2009–2019



Source: Department of Finance, California Public K–12 Graded Enrollment and High School Graduate Projections by County, 2009 Series.

Community college transfer demand increases 13%, from 14,111 in 2008 to 15,944 by 2019, as shown in Display 28. The community college forecast shows high demand over the first half of the projection period and dips between 2015 and 2019, principally due to projected declines in the number of public high school graduates and slower community college growth, which will impact the number of annual transfers to UC.

Community college transfers account for about 89% of the entering transfer population. The remaining 11% include students from other California colleges and universities, students from out-of-state institutions, and students from foreign countries. Display 29 includes these latter groups and shows annual undergraduate transfer demand to UC increasing from 15,679 in 2008 to 17,716 in 2019. If all transfer rates are held constant, as shown in Display 30, transfer demand would increase by about 12.6%, moving fairly consistently with growth in community college demand.

Under more favorable budget circumstances, approximately 90% of the transfer population would be expected to begin matriculation in fall terms, with the remainder entering in the winter and spring terms. Because of limited resources, UC might not accept new transfers in spring terms. UC community college transfer rates are shown in Display 32 on page 46.

Display 28 UC – Mid-Range Forecast – Community College Transfers

Fall	American Indian	Asian	Black	Latino	White, Other	Total
2008	117	4,317	413	2,420	6,844	14,111
2009	126	4,466	447	2,612	7,114	14,766
2010	137	4,613	483	2,838	7,388	15,460
2011	147	4,789	518	3,106	7,639	16,198
2012	150	4,841	522	3,273	7,657	16,443
2013	153	4,867	523	3,428	7,614	16,585
2014	154	4,869	519	3,562	7,532	16,637
2015	155	4,886	511	3,657	7,397	16,605
2016	155	4,891	501	3,711	7,242	16,500
2017	155	4,884	490	3,731	7,076	16,337
2018	154	4,862	478	3,727	6,922	16,144
2019	154	4,830	467	3,717	6,777	15,944
pct change	31.4%	11.9%	13.1%	53.6%	–1.0%	13.0%

Asian includes Filipinos and Pacific Islanders.

Display 29 UC – Mid-Range Forecast – Total Annual Transfer Demand

	American Indian	Asian	Black	Latino	White, Other	Total
2008	130	4,797	458	2,689	7,605	15,679
2009	140	4,962	497	2,902	7,904	16,406
2010	152	5,126	537	3,154	8,209	17,177
2011	163	5,321	575	3,451	8,488	17,998
2012	167	5,378	580	3,637	8,508	18,270
2013	169	5,408	581	3,809	8,460	18,427
2014	172	5,410	577	3,958	8,369	18,485
2015	172	5,429	568	4,063	8,218	18,450
2016	172	5,434	557	4,123	8,047	18,333
2017	172	5,427	545	4,146	7,863	18,153
2018	172	5,402	532	4,141	7,691	17,938
2019	171	5,366	519	4,130	7,531	17,716
pct change	31.4%	11.9%	13.1%	53.6%	-1.0%	13.0%

Asian includes Filipinos and Pacific Islanders.

Display 30 UC – Baseline Forecast – Annual Transfer Demand

	American Indian	Asian	Black	Latino	White, Other	Total
2008	130	4,797	458	2,689	7,605	15,679
2009	135	4,952	492	2,902	7,904	16,385
2010	140	5,105	527	3,154	8,209	17,134
2011	144	5,288	560	3,451	8,488	17,932
2012	148	5,346	566	3,637	8,508	18,205
2013	150	5,376	567	3,809	8,460	18,362
2014	152	5,378	563	3,958	8,369	18,421
2015	153	5,397	555	4,063	8,218	18,386
2016	154	5,402	544	4,123	8,047	18,270
2017	154	5,394	532	4,146	7,863	18,089
2018	153	5,369	520	4,141	7,691	17,874
2019	153	5,332	507	4,130	7,531	17,653
pct change	17.7%	11.2%	10.6%	53.6%	–1.0%	12.6%

Asian includes Filipinos and Pacific Islanders.

College Opportunity

Because of reduced state support, UC had planned to cut first-time freshmen enrollments by 2,300 FTES for the 2009–10 academic year. The actual reduction was 2,136 FTES, or approximately 2,256 headcount students. As shown in Display 31, the reduction results in a loss in college opportunity of 2,409 prospective students. If funding is not restored, UC intends to reduce freshman enrollments by an additional 1,500 FTES (1,584 headcount students) during 2010–11, which would result in a loss in college opportunity of 4,499 students and a combined two-year loss of 6,908 prospective freshmen (6,908 FTES).

Display 31 Loss in College Opportunity Worksheet

Academic Year 2009–10	
UC fall 2008 freshman enrollment	37,688
UC reduction	-2,256 (2,136 FTES)
2009-10 target enrollment	35,432
CPEC 2009-10 demand estimate	37,841
Net loss in college opportunity	-2,409
Academic Year 2010–11	
UC proposed freshman reduction	1,584 (1,500 FTES)
2010-11 freshman target enrollment	33,848
CPEC 2010-11 demand estimate	38,347
Net loss in college opportunity	-4,499

Display 32 Mid–Range Forecast – Community College Transfer Participation Rates, per 1,000

	Am. Indian	Asian	Black	Latino	White, other	Total
Age 14–19						
2008	1	2	1	0	2	1
2009	1	2	1	0	2	1
2010	2	2	1	0	2	1
2011	2	2	1	0	2	1
2012	2	2	1	0	2	1
2013	2	2	1	0	2	1
2014	2	2	1	0	2	1
2015	2	2	1	0	2	1
2016	2	2	1	0	2	1
2017	2	2	1	0	2	1
2018	2	2	1	0	2	1
2019	2	2	1	0	2	1
Age 20–24						
2008	17	33	6	9	25	19
2009	18	33	6	9	25	19
2010	19	33	6	9	25	19
2011	20	33	6	9	25	19
2012	20	33	6	9	25	18
2013	20	33	6	9	25	18
2014	20	33	6	9	25	18
2015	20	33	6	9	25	18
2016	20	33	6	9	25	18
2017	20	33	6	9	25	18
2018	20	33	6	9	25	18
2019	20	33	6	9	25	18
Age 25–29						
2008	6	8	3	4	9	6
2009	6	8	3	4	9	6
2010	6	8	3	4	9	6
2011	6	8	3	4	9	6
2012	6	8	3	4	9	6
2013	6	8	3	4	9	6
2014	6	8	3	4	9	6
2015	6	8	3	4	9	6
2016	6	8	3	4	9	6
2017	6	8	3	4	9	6
2018	6	8	3	4	9	6
2019	6	8	3	4	9	6
Age 30–49						
2008	2	1	1	1	2	1
2009	2	1	1	1	2	1
2010	2	1	1	1	2	1
2011	2	1	1	1	2	1
2012	2	1	1	1	2	1

Display 32 Mid–Range Forecast – Community College Transfer Participation Rates, per 1,000

	Am. Indian	Asian	Black	Latino	White, other	Total
2013	2	1	1	1	2	1
2014	2	1	1	1	2	1
2015	2	1	1	1	2	1
2016	2	1	1	1	2	1
2017	2	1	1	1	2	1
2018	2	1	1	1	2	1
2019	2	1	1	1	2	1
Age 50 +						
2008	1	0	0	0	0	0
2009	1	0	0	0	0	0
2010	1	0	0	0	0	0
2011	1	0	0	0	0	0
2012	1	0	0	0	0	0
2013	1	0	0	0	0	0
2014	1	0	0	0	0	0
2015	1	0	0	0	0	0
2016	1	0	0	0	0	0
2017	1	0	0	0	0	0
2018	1	0	0	0	0	0
2019	1	0	0	0	0	0

CLASSROOM AND LECTURE CAPACITY ANALYSIS

Background

Questions regarding the amount of physical capacity needed to support student learning and instruction were originally thought to be answerable indirectly through state standards. This was because policymakers of the post-World War II era argued that enrollment capacity should be determined by the availability and usage of classrooms and teaching laboratories alone, and therefore, space standards needed to be crafted and adopted. Such thinking was guided by the assumption that virtually all instruction would take place in those facilities, and that other needs of the physical plant, such as space for administration and plant maintenance, would be built as circumstances dictated.

The standards, last revised in the 1970s, entail certain assumptions on size, hourly usage, and occupancy levels for classrooms, teaching laboratories, and faculty offices.

Other types of facility space, termed non-capacity space, include museums, observatories, cultural centers, hospitals, theatres, student unions, auditoriums, dormitories, auto shops, and childcare centers. Because those facilities are varied, it is difficult to apply a common standard. An institution may have adequate classrooms and teaching laboratories, yet is unable to enroll additional students due to a lack of support facilities, unless good planning has produced a balanced physical plant.

Unlike the post-World War II era, learning, engagement, exploration, collaboration, and discovery often takes place now wherever and whenever students can sign on to the Internet, be it in traditional classrooms, or in a cafeteria, library, or dorm room. It is quite common to walk into a local coffee house and find students engaged in learning while sipping a café latté. Still, the classroom will always be a major component of higher education, and an analysis of classroom capacity is central to higher education planning.

Space and utilization standards for lecture and laboratory rooms are based on a desired occupancy. The standards require most lecture classrooms to be in use 53 hours per week, excluding Saturdays. The standards recommend that each student station average 15 Assignable Square Feet (ASF) and that 66% of the stations be occupied approximately 35 hours per week. The term Weekly Student Contact Hours (WSCH) refers to the number of weekly hours of instruction a student would be engaged in per unit. A full-time student taking 15 semester units is engaged in 15 hours of instruction per week. Every 100 ASF of lecture space supports about 233 WSCH, or 15.5 FTES.

Laboratory capacity standards allow for various levels of ASF per station, depending on the discipline and course level (i.e., lower division, upper division, graduate). For example, the standards call for 110 ASF per student station for a CSU upper-division engineering laboratory, whereas 175 ASF per student station is allowed for a community college masonry.

CPEC used a weighted mean to derive laboratory capacity. Across all disciplines for UC and CSU, Display 33 shows student work stations averaging 50 ASF and 84% of the stations being occupied at least 20 hours per week. Given these standards, every 100 ASF of laboratory space will support about 40 WSCH, or 2.67 FTES. For the community colleges, every 100 ASF of laboratory space will support about 22 WSCH, or 1.5 FTES.

Display 41 Estimated UC FTES Capacity

	Lecture FTES Capacity	Laboratory FTES Capacity	Total FTES Capacity
Berkeley	27,524.1	5,019.7	32,543.8
Davis	18,760.5	5,701.6	24,462.1
Irvine	19,568.6	1,859.5	21,428.2
Los Angeles	31,720.1	2,838.7	34,558.9
Merced	4,578.0	658.6	5,236.5
Riverside	13,823.0	2,058.3	15,881.3
San Diego	16,681.7	3,605.5	20,287.2
Santa Barbara	13,724.0	2,673.3	16,397.3
Santa Cruz	11,203.8	2,471.7	13,675.5
Totals	157,583.8	26,887.0	184,470.8

Display 42 UC – Instructional FTES Capacity and FTES Enrollment

	- Fall 2008 FTES Data -		
Campus	Enrollment	Capacity	Surplus/Deficit
Berkeley	34,732	32,543.8	—
Davis	29,021	24,462.1	–4,558.9
Irvine	27,763	21,428.2	–6,334.8
Los Angeles	34,945	34,558.9	—
Merced	2,775	5,236.5	2,461.5
Riverside	18,028	15,881.3	–2,146.7
San Diego	27,487	20,287.2	–7,199.8
Santa Barbara	22,589	16,397.3	–6,191.7
Santa Cruz	16,809	13,675.5	–3,133.5
System Total	214,149	184,470.8	-27,103.9

Based on the CPEC's analysis, there is currently a 27,103.9 capacity deficit for the UC system. The Mid-Range Forecast indicates that undergraduate demand will exceed 193,000 students by 2019. If UC graduate enrollments average 19.0% of total demand over the projection period (excluding graduate health science students), student demand (undergraduate + graduate) would total 225,643 FTES by 2019. This growth would present UC with a capacity deficit of 41,172 FTES. Accordingly UC's long-range capital plans will need to include a range of options for increasing its physical plant.

Display 34 Community Colleges – Current Lecture and Laboratory ASF

	— Assignable Square Footage —		
District	Lecture	Laboratory	Total
Allan Hancock	59,611	106,846	166,457
Antelope Valley	36,284	113,708	149,992
Barstow	9,709	10,074	19,783
Butte–Glenn	59,181	118,467	177,648
Cabrillo	46,680	64,795	111,475
Cerritos	83,405	177,161	260,566
Chabot–Las Positas	94,704	154,843	249,547
Chaffey	52,061	119,872	171,933
Citrus	58,360	131,943	190,303
Coast	138,395	345,476	483,871
Compton	24,030	59,529	83,559
Contra Costa	159,163	261,450	420,613
Copper Mountain	7,338	11,504	18,842
Desert	48,721	63,720	112,441
El Camino	127,556	197,079	324,635
Feather River	9,230	16,079	25,309
Foothill–DeAnza	134,607	304,535	439,142
Gavilan	26,674	56,700	83,374
Glendale	74,227	94,469	168,696
Grossmont–Cuyamaca	82,901	205,890	288,791
Hartnell Joint	21,125	66,624	87,749
Imperial Valle	32,990	33,836	66,826
Kern	100,889	151,246	252,135
Lake Tahoe	14,755	22,397	37,152
Lassen	16,033	38,632	54,665
Long Beach	78,458	197,948	276,406
Los Angeles	538,043	961,840	1,499,883
Los Rios	212,763	439,485	652,248
Marin	50,223	111,333	161,556
Mendocino–Lake	11,459	41,008	52,467
Merced	42,207	111,480	153,687
Mira Costa	62,957	78,082	141,039
Monterey Peninsula	35,928	63,207	99,135
Mt. San Antonio	180,093	246,357	426,450
Mt. San Jacinto	41,534	77,071	118,605
Napa Valley	28,951	70,816	99,767
North Orange County	217,674	316,196	533,870
Ohlone	52,445	84,234	136,679

Display 34 Community Colleges – Current Lecture and Laboratory ASF

	— Assignable Square Footage —		
District	Lecture	Laboratory	Total
Palo Verde CCD	3,984	22,755	26,739
Palomar CCD	67,867	169,698	237,565
Peralta	104,327	276,906	381,233
Rancho Santiago	163,776	158,750	322,526
Redwoods	37,613	96,851	134,464
Rio Hondo	51,346	96,573	147,919
Riverside	139,363	166,219	305,582
San Bernardino	86,515	172,030	258,545
San Diego	271,998	352,924	624,922
San Francisco	228,735	308,418	537,153
San Joaquin Delta	71,735	161,899	233,634
San Jose–Evergreen	87,190	184,133	271,323
San Luis Obispo County	48,403	99,486	147,889
San Mateo County	143,898	243,265	387,163
Santa Barbara	100,643	122,230	222,873
Santa Clarita	64,253	126,663	190,916
Santa Monica	147,327	128,082	275,409
Sequoias	47,796	84,356	132,152
Shasta–Tehama–Trinity Joint	45,130	86,566	131,696
Sierra Joint	82,429	127,120	209,549
Siskiyou Joint	13,521	30,556	44,077
Solano	63,147	88,940	152,087
Sonoma County Junior	103,107	142,960	246,067
South Orange County	120,807	159,891	280,698
Southwestern	90,306	130,912	221,218
State Center	128,594	319,571	448,165
Ventura County	161,643	254,027	415,670
Victor Valley	17,271	119,832	137,103
West Hills	21,303	45,255	66,558
West Kern	11,569	20,123	31,692
West Valley–Mission	94,498	145,090	239,588
Yosemite	57,818	220,700	278,518
Yuba	77,139	86,153	163,292
Systemwide Totals	6,131,381	10,872,320	17,003,701

Display 35 Community Colleges – Enrollment Capacity Analysis

	— 2008–2009 FTES data —		
Region	Enrollment	Capacity	Surplus/Deficit
Allan Hancock	11,063	10,841	–222
Antelope Valley	11,989	7,319	–4,670
Barstow	3,394	1,657	–1,737
Butte–Glenn	13,608	10,946	–2,662
Cabrillo	12,017	8,210	–3,807
Cerritos	20,596	15,578	–5,019
Chabot–Las Positas	16,135	17,002	868
Chaffey	15,630	9,861	–5,769
Citrus	12,943	11,018	–1,925
Coast	39,084	26,610	–12,473
Compton	4,742	4,614	–128
Contra Costa	33,207	28,593	–4,614
Copper Mountain	2,111	1,310	–801
Desert	8,581	8,511	–70
El Camino	22,261	22,730	469
Feather River	2,191	1,672	–519
Foothill–DeAnza	38,365	25,416	–12,949
Gavilan	5,748	4,983	–766
Glendale	17,535	12,928	–4,607
Grossmont–Cuyamaca	19,848	15,924	–3,923
Hartnell Joint	7,858	4,267	–3,591
Imperial Valle	9,465	5,625	–3,839
Kern	21,992	17,910	–4,083
Lake Tahoe	2,000	2,623	623
Lassen	2,014	3,062	1,048
Long Beach	22,944	15,117	–7,828
Los Angeles	111,444	97,811	–13,633
Los Rios	62,840	39,554	–23,286
Marin	2,383	9,449	7,066
Mendocino–Lake	3,121	2,387	–734
Merced	10,961	8,206	–2,755
Mira Costa	7,584	10,935	3,351
Monterey Peninsula	7,915	6,516	–1,399
Mt. San Antonio	33,271	31,621	–1,651
Mt. San Jacinto	12,585	7,592	–4,993
Napa Valley	6,572	5,545	–1,027
North Orange County	36,784	38,492	1,708
Ohlone	9,301	9,393	92
Palo Verde	2,025	956	–1,069

Display 35 Community Colleges – Enrollment Capacity Analysis

	— 2008–2009 FTES data —		
Region	Enrollment	Capacity	Surplus/Deficit
Palomar	21,596	13,054	-8,543
Pasadena	26,455	19,227	-7,228
Peralta	22,342	20,304	-2,039
Rancho Santiago	35,956	27,789	-8,167
Redwoods	5,473	7,276	1,803
Rio Hondo	16,068	9,405	-6,663
Riverside	31,364	24,108	-7,256
San Bernardino	16,074	15,985	-89
San Diego	44,664	47,474	2,809
San Francisco	42,935	40,095	-2,840
San Joaquin Delta	17,681	13,539	-4,142
San Jose–Evergreen	16,384	16,269	-115
San Luis Obispo County	10,390	8,991	-1,399
San Mateo County	20,729	25,952	5,223
Santa Barbara	17,462	17,442	-19
Santa Clarita	15,750	11,855	-3,894
Santa Monica	28,050	24,780	-3,270
Sequoias	9,652	8,673	-980
Shasta–Tehama–Trinity Joint	8,525	8,291	-234
Sierra Joint	15,234	14,685	-549
Siskiyou Joint	2,781	2,552	-228
Solano	4,887	11,125	6,238
Sonoma County Junior	22,748	18,132	-4,617
South Orange County	24,785	21,132	-3,653
Southwestern	15,859	15,965	106
State Center	31,890	24,705	-7,185
Ventura County	30,935	28,868	-2,066
Victor Valley	10,613	4,456	-6,157
West Hills	6,602	3,979	-2,623
West Kern	778	2,095	1,317
West Valley–Mission	18,886	16,826	-2,060
Yosemite	18,839	12,247	-6,592
Yuba	9,170	13,257	4,088
Systemwide Totals	1,305,665	1,113,318	-192,347

Display 36 Los Rios Community College District – FTES Generated by Distributed Learning

College	Distance Education Type	Credit FTES	Non-Credit FTES
American River	Correspondence, e-mail, newspaper	4.54	0.00
	Internet asynchronous instruction	1,597.22	0.00
	Internet synchronous instruction	8.40	0.00
	On-demand TV broadcast; DVD	19.54	0.00
Cosumnes River	Internet asynchronous instruction	820.68	0.00
	TV broadcast with audio bridge	110.09	0.00
	Videoconference with audio bridge	26.98	0.00
Folsom Lake	Internet asynchronous instruction	440.83	0.00
	Videoconference with audio bridge	51.37	0.00
Sacramento City	Internet asynchronous instruction	866.00	0.00
	On-demand TV broadcast; DVD	35.81	0.00
	TV broadcast with audio bridge	30.36	0.00
	Videoconference with audio bridge	15.05	0.00

CSU Capacity Analysis

Display 37 shows CSU lecture and laboratory ASF by campus. FTES capacity is compared with fall 2008 FTES enrollment by CSU campus. Of the 23 campuses, 18 (78%) appear to be facing capacity pressures, in that they are serving more FTES than recommended by state classroom utilization standards. The remaining campuses seem to have sufficient capacity at the present time. CSU capital planners correctly point out, though, that numerous buildings are over 60 years old. Since the average lifespan of educational facilities is about 50 years, many campuses will likely face huge renovation and moderation costs at a time when state capital funds are limited.

Display 37 CSU – Current Lecture and Laboratory ASF

Campus	Lecture ASF	Lab ASF	Total ASF
Bakersfield	31,431	34,821	66,252
Channel Islands	15,986	17,319	33,305
Chico	80,619	128,722	209,341
Dominguez Hills	42,467	27,914	70,381
East Bay	50,194	34,345	84,539
Fresno	92,776	137,470	230,246
Fullerton	133,261	196,190	329,451
Humboldt	32,234	92,677	124,911
Long Beach	152,643	281,599	434,242
Los Angeles	85,839	17,559	103,398
Maritime Academy	4,151	12,985	17,136
Monterey Bay	18,216	16,112	34,328
Northridge	132,568	215,409	347,977
Pomona	92,788	152,739	245,527
Sacramento	114,993	141,677	256,670
San Bernardino	66,584	64,239	130,823
San Diego	160,064	177,151	337,215
San Francisco	125,061	159,391	284,452
San Jose	123,380	262,997	386,377
San Luis Obispo	93,092	390,917	484,009
San Marcos	38,134	16,762	54,896
Sonoma	40,770	38,828	79,598
Stanislaus	35,801	25,970	61,771
Totals	1,763,052	2,643,793	4,406,845

The Mid-Range Forecast shows that undergraduate demand will exceed 416,000 students by 2019. If CSU graduate enrollments average 30% of total demand over the projection period, demand (undergraduate + graduate) would total 493,257 FTES by 2019, presenting CSU with a capacity deficit of -148,895 on a statewide basis. The CSU statewide Capital Planning, Design, and Construction Office submitted a number of cautionary comments regarding the interpretation of campus capital needs based on state capacity standards. Some of those concerns have been woven into the background narrative of this section. Public officials and policy analysts interested in higher education capital needs are urged to read the entire CSU response, which is provided in Appendix D.

Display 38 CSU Capacity Analysis Based on 2008–09 Data

	2008–09 FTES Data		
Campus	Enrollment	Capacity	Surplus/Deficit
Bakersfield	6,981	5,811	–1,170
Channel Islands	3,271	2,945	–326
Chico	15,963	15,955	–8
Dominguez Hills	8,846	7,341	–1,505
East Bay	12,510	8,713	–3,797
Fresno	19,339	18,077	–1,262
Fullerton	28,362	25,932	–2,430
Humboldt	7,223	7,478	255
Long Beach	30,895	31,220	325
Los Angeles	16,297	13,802	–2,495
Maritime Academy	884	991	107
Monterey Bay	4,129	3,259	–870
Northridge	28,461	26,336	–2,125
Pomona	17,805	18,486	681
Sacramento	23,613	21,640	–1,973
San Bernardino	14,866	12,056	–2,810
San Diego	30,821	29,587	–1,234
San Francisco	24,692	23,677	–1,015
San Jose	26,291	26,178	–113
San Luis Obispo	18,498	24,885	6,387
San Marcos	7,449	6,370	–1,079
Sonoma	8,259	7,368	–891
Stanislaus	6,631	6,254	–377
Totals	362,086	344,362	–17,724

UC Capacity Analysis

Display 39 shows lecture and laboratory ASF by UC campus. The system has about 2.1 million ASF of lecture and laboratory space, which represents about 10% of total UC space. The remaining physical inventory includes hospitals, museums, theaters, dormitories, arenas, and other nonstandard space. While the percentage of lecture and laboratory space might seem surprisingly low, it must be emphasized that the more complex an institution of higher education becomes, and the more responsibilities it assumes, the smaller the role played by regular classroom instruction.

UC's responsibility in research, the health sciences and public service require very large space allocations, and produce the seeming oddity that UC manages more square footage on its existing ten campuses than does CSU and the community colleges. The process of deriving lecture and laboratory capacity estimates for UC is much more complex than it is for the other two public systems because of the university's research responsibilities and space needs.

Display 40 shows state ASF standards for UC laboratory space by discipline area and student level. Since UC does not have classrooms designated exclusively for lower-division or upper-division instruction, the display shows mean ASF standards by discipline area. Notice that the means range

from a low of 30 ASF for a general social science laboratory to a high of 100 ASF for an engineering science laboratory. The grand mean is 49.7 ASF, which is simply ASF averaged across all disciplines. The median is 44, so about half the disciplines have standards of 44 ASF or less. CPEC used the grand mean, rounded to 50 ASF, in deriving laboratory FTES capacity by campus.

Display 39 UC – Current Lecture and Laboratory ASF

Campus	Lecture ASF	Lab ASF	Totals
Berkeley	194,636	188,239	382,875
Davis	132,664	213,810	346,474
Irvine	138,379	69,733	208,112
Los Angeles	224,308	106,453	330,761
Merced	32,373	24,696	57,069
Riverside	97,749	77,187	174,936
San Diego	117,964	135,206	253,170
Santa Barbara	97,049	100,249	197,298
Santa Cruz	79,227	92,690	171,917
Totals	1,114,349	1,008,263	2,122,612

Display 40 UC – Instructional FTES Capacity and FTES Enrollment

Discipline Area	Lower Division	Upper Division	Mean
Administration disciplines	33	33	33
Agricultural Biological Sciences	58	60	59
Agricultural Economics	33	33	33
Agricultural Science	60	60	60
Anthropology	43	45	44
Architecture	40	65	52.5
Art, Performing	65	65	65
Arts, Visual	65	65	65
Biological Sciences	55	60	57.5
Computer Sciences	45	55	50
Education	40	40	40
Engineering Sciences	90	110	100
Engineering, Agricultural	90	110	100
Engineering, Chemical	75	90	82.5
Foreign Languages	40	40	40
Geography	45	50	47.5
International Relations	40	40	40
Journalism	40	40	40
Law	40	40	40

Discipline Area	Lower Division	Upper Division	Mean
Letters	40	40	40
Library Sciences	40	40	40
Mathematical Sciences	30	30	30
Physical Sciences	60	70	65
Psychology	43	45	44
Social Ecology	45	45	45
Social Sciences, General	30	30	30
Social Welfare	30	30	30
Studies, Applied Behavior	40	40	40
Studies, Creative	40	40	40
Studies, Environmental	55	60	57.5
Studies, Interdisciplinary	30	30	30
Grand Mean			49.7
Median			44

A few cautionary comments must be noted here. First, while the grand mean works as well as any single alternative value, the result is not a definitive indication of laboratory capacity, but rather a general indication of the relative magnitude of capacity pressures experienced by a UC campus when FTES capacity is compared with FTES enrollment. Second, to derive a more definitive understanding of physical capacity on a systemwide basis it is necessary to take into consideration the following: the mix of program and laboratory offerings by campus, the level of FTES generated by distance education offerings, the level of FTES generated in rooms that do not have state space standards, the range of laboratories that are assigned to a specific department and that are not shared with other departments, and perhaps, consideration of pedagogical teaching practices and learning modalities that might be specific to a particular discipline area.

In Display 41, lecture and laboratory ASF has been converted to FTES capacity based on the CPEC's application of state classroom standards, discussed at the outset of the capacity section. By CPEC agreement, UC FTES lecture capacity figures reflect a 10% allowance factor for storage and equipment, which has the effect of lowering the space available for student lecture stations. For example, on a systemwide basis, the university's FTES lecture capacity sums to roughly 157,583 FTES. In the absence of the 10% allowance factor, the lecture capacity estimate on a systemwide basis would total 173,305 FTES.

In Display 42, FTES capacity is compared with FTES enrollment for the 2008–09 academic year. As shown, all campuses except UC Merced are serving full-time equivalent students in excess of the FTES threshold levels derived from the classroom utilization standards. FTES capacity figures are not provided for UC Berkeley and UC Los Angeles because those two campuses are essentially at their Long-Range Development Plan limits and each could not add the level of physical capacity implied by the state space standards.

Display 41 Estimated UC FTES Capacity

	Lecture FTES Capacity	Laboratory FTES Capacity	Total FTES Capacity
Berkeley	27,524.1	5,019.7	32,543.8
Davis	18,760.5	5,701.6	24,462.1
Irvine	19,568.6	1,859.5	21,428.2
Los Angeles	31,720.1	2,838.7	34,558.9
Merced	4,578.0	658.6	5,236.5
Riverside	13,823.0	2,058.3	15,881.3
San Diego	16,681.7	3,605.5	20,287.2
Santa Barbara	13,724.0	2,673.3	16,397.3
Santa Cruz	11,203.8	2,471.7	13,675.5
Totals	157,583.8	26,887.0	184,470.8

Display 42 UC – Instructional FTES Capacity and FTES Enrollment

	- Fall 2008 FTES Data -		
Campus	Enrollment	Capacity	Surplus/Deficit
Berkeley	34,732	32,543.8	—
Davis	29,021	24,462.1	–4,558.9
Irvine	27,763	21,428.2	–6,334.8
Los Angeles	34,945	34,558.9	—
Merced	2,775	5,236.5	2,461.5
Riverside	18,028	15,881.3	–2,146.7
San Diego	27,487	20,287.2	–7,199.8
Santa Barbara	22,589	16,397.3	–6,191.7
Santa Cruz	16,809	13,675.5	–3,133.5
System Total	214,149	184,470.8	-27,103.9

Based on the CPEC's analysis, there is currently a 27,103.9 capacity deficit for the UC system. The Mid-Range Forecast indicates that undergraduate demand will exceed 193,000 students by 2019. If UC graduate enrollments average 19.0% of total demand over the projection period (excluding graduate health science students), student demand (undergraduate + graduate) would total 225,643 FTES by 2019. Accordingly UC's long-range capital plans will need to include a range of options for increasing its physical plant.

APPENDIX A Community College Enrollment Demand Methodology

Enrollment demand is an estimate of the total number of qualified prospective and continuing students that would enroll in the community college system in a given year at a prevailing student fee level if enrollments were not constrained by state funding. In contrast, an enrollment projection is an estimate of enrollment the state is able and willing to fund based on budgetary, economic, and fiscal circumstances. When circumstances are favorable, enrollment demand and enrollment projection estimates will yield very similar results. When circumstances are less favorable, as during economic recessions, demand estimates will be higher than projection estimates, because by definition state resources are insufficient to fully meet demand.

To estimate enrollment demand, staff used historical fall headcount enrollments by age group and ethnicity. Cases with an unknown ethnicity were prorated proportionately. Within ethnicity, cases with an unknown age group were prorated proportionately. Historical participation rates were derived by dividing community college fall enrollments by the corresponding population estimates prepared by the Demographic Research Unit of the Department of Finance.

The historical data showed that upward trends in college participation over the past eight years were most pronounced for the 14–19, 20–24, and 25–29 age groups. Staff used regression analysis to derive a mean rate of change in participation for those age categories. The regression slope represents a linear average change rate and is defined symbolically as:

$$b_{yx} = n \sum xy - (\sum x)(\sum y) / n \sum x^2 - (\sum x)^2$$

where n = number of cases x = year y = participation rate

The change rates for the age groups stated above were continued over the first three years of the projection period and then held constant for the remaining years (see Appendix A). With few exceptions, participation rates for the older age groups were held constant through the projection period. Enrollment demand headcounts were derived by multiplying the participation rates by the population estimates.

Classroom Capacity Method

To estimate the current physical capacity of the community colleges, CPEC obtained from the California Community Colleges Chancellor's Office the current total assignable square feet (ASF) of lecture and laboratory space by district. State-adopted space and utilization standards, described on page 48, were used to convert ASF classroom capacity to FTES capacity. A capacity deficit/surplus value was obtained by subtracting FTES capacity from fall 2008 FTES enrollment. A positive value indicates a surplus and a negative indicates a deficit. District values were summed to derive a statewide net value. The current statewide capacity deficit is 192,347 FTES. It should be noted that the statewide deficit value understates the magnitude of the capacity problem, because a campus with capacity surplus is of little value to a campus with a capacity deficit, unless the two campuses are located close to one another, which might allow for joint facility partnerships. Based on the CPEC fall 2019 demand estimates, a 425,163 FTES capacity deficit would result in the absence of corrective actions outlined in the report.

APPENDIX B CSU and UC Undergraduate Enrollment Demand Methodology

Enrollment demand is an estimate of the total number of qualified prospective and continuing students that would enroll in the higher education systems if student fees were affordable and enrollment growth was not constrained by reduced state funding. In contrast, an *enrollment projection* is an estimate of enrollment the state is able and willing to fund based on budgetary, economic, and fiscal circumstances. When funding is adequate, enrollment demand and enrollment projection estimates will yield very similar results. When circumstances are less favorable, as during economic recessions, demand estimates will be higher than projection estimates, because by definition state resources are insufficient to fully meet demand.

To estimate undergraduate demand it was necessary first to drive projections of entering first-time freshmen and community college transfer students. Historical freshmen participation rates were analyzed by ethnicity, and historical community college transfer rates were analyzed by ethnicity and age group. Cases with an unknown ethnicity were prorated proportionately. Within ethnicity, cases with an unknown age group were prorated proportionately. The freshman participation rate is calculated as the number of entering first-time freshmen in a given year divided by the corresponding senior class of public high school graduates. The community college transfer rate is calculated as the number of community college transfers of a given age group in a given term divided by the corresponding community college enrollment of a given age group in a given term.

Rates that showed a clear upward trend were used in a regression analysis. The regression slope represents a linear average change rate and is defined symbolically as:

$$b_{yx} = n \sum xy - (\sum x)(\sum y) / n \sum x^2 - (\sum x)^2$$

where n = number of cases x = year y = participation rate

The change rates were extended over the first three years of the projection period and then held constant thereafter. The freshmen rates were multiplied by the Demographic Research Unit's projection of high school graduates to derive freshman demand. The most current 12-year persistence and graduation rates were used in an actuarial analysis using life tables to simulate the enrollment behavior of freshman from entry into the CSU and UC systems to final departure from those systems. An example is provided on the next page to illustrate the use of life tables to simulate enrollment behavior.

This example shows cohorts of entering CSU freshmen of a particular ethnicity for 2002 to 2019. Based on current persistence and graduation rates, the number of enrolled students for this ethnic group that entered as first-time freshmen is projected to increase from 45,225 to 52,758 in 2019.

Change rates for community college transfers to CSU and UC were multiplied by CPEC's Mid-Range Community College Enrollment Demand Forecast to derive community college transfer demand. The numbers were adjusted upward to derive total undergraduate transfer demand that includes students from other California colleges and universities (4.4%), students from out-of-state institutions (7.5%), and students from foreign countries (1.8%). Life tables, involving the most recent transfer persistence and graduation rates, were used to simulate enrollment behavior.

APPENDIX C CSU Life Table Example – Cohorts of Entering First-Time Freshmen, 2002–19

year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	**8,896**	8,926	9,051	9,930	10,318	10,950	10,498	10,773	11,147	11,469	11,514	11,646	11,797	11,810	11,624	11,708	12,462	12,591
1		**7,428**	7,453	7,558	8,292	8,616	9,143	8,766	8,995	9,308	9,577	9,614	9,724	9,850	9,861	9,861	9,776	10,406
2			**6,734**	6,757	6,852	7,517	7,811	8,289	7,947	8,155	8,438	8,682	8,716	8,816	8,930	8,940	8,940	8,863
3				**6,405**	6,427	6,517	7,150	7,429	7,884	7,559	7,757	8,026	8,258	8,290	8,385	8,494	8,503	8,503
4					**5,089**	5,106	5,177	5,680	5,902	6,263	6,005	6,162	6,376	6,560	6,586	6,662	6,748	6,755
5						**2,562**	2,571	2,607	2,860	2,972	3,154	3,023	3,103	3,210	3,303	3,316	3,354	3,398
6							**1,165**	1,169	1,186	1,301	1,352	1,434	1,375	1,411	1,460	1,502	1,508	1,526
7								**943**	946	959	1,053	1,094	1,161	1,113	1,142	1,182	1,216	1,220
8									**543**	544	552	606	629	668	640	657	680	700
9										**329**	330	335	367	382	405	388	399	412
10											**187**	187	190	209	217	230	220	226
11												**142**	143	145	159	165	175	168
12													**107**	107	109	119	124	131
								45,225	46,421	47,527	48,388	49,216	50,038	50,589	50,827	51,197	52,009	52,758

Estimated number of students who enrolled at CSU, fall 2002 to fall 2019, who originally entered as first-time freshmen.

APPENDIX D Comments from CSU

The following comments were submitted by California State University Chief of Facilities Planning, Larry Piper in a memorandum dated February 8, 2010.

Thanks for sharing your draft CPEC report on CSU FTE capacity versus demand projections. I agree with your conclusion that state standards suggest that CSU is serving more FTES than our current capacity. I also want to note, however, that the reduced enrollment data are internal estimates based on our current budget and not an approved forecast. Clearly the amount of state support for CSU has not yet settled, and given where we are in the budget process, these estimates are subject to change accordingly.

A few other general comments on the ASF/FTE model are worth considering. CSU has developed the ASF/FTE report as a diagnostic tool for assessing the relative supply of lecture and lab space to the formulaic space entitlement per FTE within the 23 campus CSU system. This tool is used by the Chancellor's Office to compare the relative status of existing capacity to meet future academic needs both systemwide and at the campus level. One known shortcoming of this tool is that it assumes uniform growth across all HEGIS categories, which clearly does not hold in all cases. A related modeling error is that growth is not accurately recognized for our newer and smaller campuses (i.e. Channel Islands) that are still adding programs because they initially do not have the full range of HEGIS offerings to project their growth.

The ASF/FTE model is most useful when judiciously applied to assessing the relative order of magnitude of need versus capacity at a campus wide level and in identifying campus specific capacities in relation to uniform HEGIS level growth or decline over time. The CSU capital outlay program aims to construct new or renovated capacity to meet future FTE needs based on projected enrollments. The more precise planning tool used for this purpose is our Summary of Campus Capacity Report (CPDC Form 1-2), which is updated annually in conjunction with the Five –Year Capital Improvement Program. This tool assess campus capacity based on existing plus funded projects in the delivery pipeline to estimate future entitlement surplus or deficit, assuming a given multi-year enrollment projection.

Your Draft report noted several concerns in attempting to make assumptions about the adequacy of future campus capacity. We would agree. One reason that estimating tools such as the ASF/FTE model tool yield less reliable information is because the system under study, the 43,000 million assignable square feet of academic space, is inherently heterogeneous in terms of classroom and laboratory age, condition, design, and utilization. Lecture and lab space is not a commodity; the rapid evolution of technology and pedagogy have undermined the basic formula defining a workstation and changes in design and teaching mode have significantly altered the utilization and utility of one configuration or vintage of classroom to another.

The differentiation of lecture space is particularly noticeable in large, mature campuses with many older facilities. Utilization rates of new versus older lecture facilities are widely skewed. Whereas the traditional lecture rooms were designed at 15 ASF per workstation, newer, high tech, multimedia, code compliant lecture rooms employ 20-25 ASF or more per station and the trend is ever increasing as laptops abound and case study formats are in high demand.

Modern classroom design has been proven to improve academic performance; however, state entitlements remain as developed to 1960 standards. Antiquated classrooms still abound across the CSU system, a factor that distorts the image of available capacity. Nearly half of all CSU facilities are over 40 years old; 438 academic buildings are over 50 years old. Renovation can breathe new life into such facilities, but the backlog of capital renovation projects now measures in the billions of dollars. Renovated rooms typically consume far beyond 15 ASF per station in order to comply with current accessibility codes, HVAC and sight lines.

One additional variable worth considering is the size of available lecture facilities on campus. Reversing the trend toward smaller class size, recent budget cuts have necessitated multi-section classes of 300-500. Cam-

puses over endowed with 20-40 station rooms have little use for this existing capacity and no simple way to adapt to larger capacity needs. Consideration of these variables will encourage a more cautious application of the ASF/FTE model in assessing realistic lecture capacity estimates.

A similar but even more dramatic argument can be made for laboratory facilities, where the application of new technology and the growth in demand for new disciplines such as nursing has far outstripped the capacity to adapt 50 year old facilities or construct contemporary labs for science, technology, engineering and math. A glaring omission in current space standards is the lack of entitlement for undergraduate research space, despite the fact that many science disciplines require such capstone research for degree completion. Faculty research is similarly absent as a driver of CSU capacity entitlement. The gap between existing building stock supply and present and proposed laboratory capacity needs is thus a number far in excess of what state ASF standards can bridge.

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