PROVIDING FOR PROGRESS

California Higher Education Enrollment Demand and Resources into the 21st Century

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

FEBRUARY 2000

COMMISSION REPORT 00-1

Summary

This report contains 12-year enrollment demand projections for California's three public higher education systems, an analysis of campus physical capacity and projected capital outlay costs, and a discussion of economic trends and California's ability to sell bonds to finance future higher education construction. The report is a major update to the Commission's 1995 report, *A Capacity for Growth*, and contains numerous findings and conclusions. Among them:

- Some 714,753 more students will seek to enroll at a California college or university by 2010;
- That student body will be the most diverse in State history;
- California public higher education has some current excess capacity but must have considerably more in order to accommodate all who would desire to enroll;
- The State will need to spend some $1.5 billion per year for at least the next 10 to 12 years to maintain existing higher education facilities and to provide for the expected enroll demand increases;
- California's economy has produced multi-billion dollar budget surpluses in recent years and can expect more; and
- Given expanded General Fund projections and a modest expansion of debt service levels, California could afford annual sales of some $4.5 billion in general obligation bonds.

The Commission approved this report at its meeting of February 6, 2000. Questions about the substance of the report may be directed to the Commission staff at (916) 445-7933. Copies of this and other Commission reports may be ordered by e-mail at PublicationRequest@cpec.ca.gov , or by writing the Commission at 1303 J Street, Suite 500, Sacramento, Ca. 95814-2938; or by telephone at the above telephone number. Please visit the Commission Website at www.cpec.ca.gov for more information about education beyond high school.

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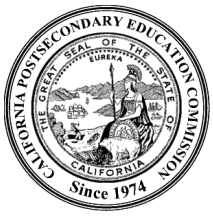
CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
1303 J Street ♦ Suite 500 ♦ Sacramento, California 95814-2938



COMMISSION REPORT 00-1
PUBLISHED FEBRUARY 2000

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STATE OF CALIFORNIA GRAY DAVIS, *Governor*

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An Open Letter to the People of California

About Providing for Progress in the 21st Century

Dear Californian: April 2000

The California Postsecondary Education Commission is pleased to present *Providing for Progress: California Higher Education Enrollment Demand and Resources into the 21st Century.* For the past decade, the Postsecondary Education Commission has remained focused on improving both access to, and the quality of, higher education in our state for the current and future generations of students. The outset of a new century provides a meaningful juncture at which California can both assess its progress to date and, more important, set a course to meet the postsecondary education challenges ahead.

In this report and its related/companion document, *Policy for Progress: Reaffirming California Higher Education Accessibility, Affordability, and Accountability into the 21st Century* (CPEC Report 00-3), the Commission forecasts that California colleges and universities will be asked to accommodate over 715,000 more students by 2010. This report explains how the Commission reached this conclusion, examines who those students are, what the state's higher education institutions must do to expand their existing classroom and facility capacity, and how the State can finance these necessary changes.

This report presents a series of findings and conclusions the Commission believes will be vital in helping policy makers, educators, and others chart a course for higher education into the new century. What is clear is that we cannot rely on "business as usual" to carry the day. We must all strive to be innovative, imaginative, and bold in meeting the challenges ahead. The Commission will continue to work toward these goals and to ensure that California higher education remains a vital vehicle in providing for progress for all.

Sincerely,

Guillermo Rodriguez, Jr.
Chair

Warren H. Fox, Ph.D.
Executive Director

Contents

Page	Section
1	**ONE** Executive Summary, Findings, and Conclusions
1	Executive Summary
3	Findings
7	Conclusions
11	**TWO** Historic Precedent, Prior Commission Projections, New Challenges
11	Historic Precedent
12	Prior Commission Projections: *A Capacity for Growth*
15	The Challenge of Growth
19	**THREE** Measuring the Wave: California Public College and University Enrollment Demand to 2010
19	Introduction
20	Enrollment Demand Overview
27	Projected Enrollment Demand at the University of California
41	Projected Enrollment Demand at the California State University
53	Projected Enrollment Demand at the California Community Colleges

58 Enrollment Demand Implications for the State's Independent and Private Colleges and Universities

63 Concluding Enrollment Demand Remarks

67 FOUR Stresses and Strains: An Analysis of Enrollment Capacity

67 Introduction

69 Space Standards and Enrollment Capacity

71 Determining the Physical Capacity of California Higher Education

73 University of California

80 The California State University

83 The California Community Colleges

86 Independent and Private Degree-Granting Colleges and Universities

87 Using Technology and Telecommunications to Enhance Student Access

89 FIVE Counting the Costs: Capital Outlay Estimates

89 Introduction

91 University of California

93 California State University

95 California Community Colleges

97 Summary

99 SIX "The Roaring 2000s": Economic and Fiscal Analysis

99 The Difficulty of Economic Forecasting

102 Surveying the New Economy

103 Probabilities and Dangers

104 California Economic and General Fund Revenue Forecasts

106 General Fund Spending Assumptions

111 Summary

113 SEVEN Room to Grow: An Analysis of Debt Capacity

113 Introduction

115 A Report by the State Treasurer: *Smart Investments*

117 A Projection of Bonding Capacity

121 Higher Education's Share of Capital Spending

125 Appendix A: Acknowldegements and Long-Range Planning Advisory Committee

129 Appendix B: The Function and Purpose of Long-Range Planning

135 Appendix C: Methodology of the Projections

137 References

Displays

Page	Display	
1	1-1	Headcount Enrollments in California Public Higher Education, 1960 to 1997; and Projected Enrollments, 1998 to 2010
12	2-1	Higher Education Enrollments, 1950 to 1997
13	2-2	Headcount Enrollments in California Public Higher Education, 1950 to 1997
14	2-3	Comparison of 1994 and 1995 Enrollment Projections by the California Postsecondary Education Commission (CPEC) and the Demographic Research Unit of the Department of Finance (DRU)
14	2-4	Bond Appropriations for California Public Higher Education, 1990-91 to 1999-00
16	2-5	California Birth Rate History, 1942 to 1996
21	3-1	Higher Education Enrollment Demand, California Public Colleges and Universities, Fall 1998 to Fall 2010 (Headcount Students), 1999 CPEC Baseline Projection Series (Undergraduate and Graduate)
21	3-2	Higher Education Enrollment Demand California Public Colleges and Universities, Fall 1998 to Fall 2010
22	3-3	Higher Education Enrollment Demand, California Public Colleges and Universities, Fall 1998 to Fall 2010 (Headcount Students), 1999 CPEC Low Alternative Projection Series (Undergraduate and Graduate)
22	3-4	California Public Higher Education Undergraduate Enrollment Demand, Fall 1998 to Fall 2010
24	3-5	General Assumptions for the Baseline Forecast
25	3-6	1998 Department of Finance Projections of California Public High School Graduates by Ethnicity, in Numbers and Percentage Change, 1997-98 to 2009-10
26	3-7	Ethnic Representation of California's Adult Population in 1993 Compared with 2010
27	3-8	Department of Finance Population Projections by Selected Age-Groups, 1995 to 2010
28	3-9	University of California Enrollment Demand, Fall 1998 to Fall 2010

29	3-10	University of California Total Enrollment Demand, Fall 1998 to Fall 2010, 1999 CPEC Baseline Projection Series (Undergraduate and Graduate)
30	3-11	University of California Total Enrollment Demand, Fall 1998 to Fall 2010, 1999 CPEC Low Alternative Projection Series (Undergraduate and Graduate)
32	3-12	University of California Domestic First-Time Freshmen by Ethnic Group and Admission Status, Fall 1993 to Fall 1998
33	3-13	Estimated Percentage of Public High School Graduates Eligible for Freshman Admission to the University of California, by Racial/Ethnic Group, 1983, 1986, 1990, and 1996
34	3-14	University of California Public High School Participation Rates for First-Time Freshmen, 1990 to 1998 (Excludes Special Action Admissions)
35-36	3-15	Forecast Assumptions by Racial/Ethic Group, University of California First-Time Freshmen
37	3-16	University of California Anticipated First-Time Freshman Enrollment Demand, Baseline Projection by Racial/Ethnic Group and Admission Status, Academic Year 1999-00 to 2010-11
38	3-17	University of California Anticipated First-Time Freshman Enrollment Demand, Low Alternative Projection by Racial/Ethnic Group and Admission Status, Academic Year 1999-00 to 2010-11
39	3-18	First-Time Transfer Students to the University of California, Academic Year 1998-99 to 2010-11 (CPEC Baseline Projection)
39	3-19	First-Time Transfer Students to the University of California, Academic Year 1998-99 to 2010-11 (CPEC Low Alternative Projection)
40	3-20	Community College Transfers to the University of California, and Their Expected Graduation Rate (Transfer Rate Expressed per 1,000 Students by Age and Racial/Ethnic Group)
41	3-21	Anticipated Undergraduate Enrollment at the University of California by Enrollment Category Between Fall 1999 and Fall 2010, Using the Commission's Baseline Projection
42	3-22	California State University Total Student Demand, Fall 1998 to Fall 2010
43	3-23	California State University Total Enrollment Demand, Fall 1998 to Fall 2010, 1999 CPEC Baseline Projection Series (Undergraduate and Graduate)

44	3-24	California State University Total Enrollment Demand, Fall 1998 to Fall 2010, 1999 CPEC Low Alternative Projection Series (Undergraduate and Graduate)
46-47	3-25	Forecast Assumptions by Racial/Ethnic Group, California State University First-Time Freshmen
48	3-26	Estimated Percentage of Public High School Graduates Eligible for Freshman Admission to the California State University, by Racial/Ethnic Group, 1983, 1986, 1990, and 1996
49	3-27	California State University Anticipated First-Time Freshman Enrollment Demand, Baseline Projection by Racial/Ethnic Group and Admission Status, Academic Year 1999-00 to 2010-11
50	3-28	California State University Anticipated First-Time Freshman Enrollment Demand, Low Alternative Projection by Racial/Ethnic Group and Admission Status, Academic Year 1999-00 to 2010-11
51	3-29	First-Time Transfer Students to the California State University, Academic Year 1998-99 to 2010-11 (CPEC Baseline Projection)
51	3-30	First-Time Transfer Students to the California State University, Academic Year 1998-99 to 2010-11 (CPEC Low Alternative Projection)
52	3-31	Anticipated Undergraduate Enrollment at the California State University by Enrollment Category Between Fall 1999 and Fall 2010, Using the Commission's Baseline Projection
52	3-32	Community College Transfers to the California State University, and Their Expected Graduation Rate (Transfer Rate Expressed per 1,000 Students by Age and Ethnic-Racial Group)
54	3-33	California Community Colleges Total Enrollment Demand, Fall 1998 to Fall 2010 (1999 CPEC Baseline Projection Series)
55	3-34	California Community Colleges Total Enrollment Demand, Fall 1998 to Fall 2010 (1999 CPEC Low Alternative Projection Series)
56	3-35	California Community Colleges Total Student Demand Fall 1998 to Fall 2010
57	3-36	California Community College Enrollment Demand by Age-Group and Racial/Ethnic Group
57	3-37	Anticipated California Community College Enrollment by Age Group, with Percentage Distribution, Fall 2010
59	3-38	Undergraduate and Graduate Enrollment Among the 200 California Independent and Private Colleges and Universities that Submitted IPEDS Enrollment Forms to the Commission for Fall 1998
60	3-39	AICCU Classification of Independent Colleges and Universities

62	3-40	Undergraduate Enrollment Demand Projections, California Public and Private Four-Year Colleges and Universities, Fall 1998 to Fall 2010
63	3-41	Estimate of Undergraduate and Graduate Enrollment Demand at 197 Degree-Granting Independent and Private Colleges and Universities That Participate in Title IV Student Financial Aid, Fall 1998 and Fall 2010
68	4-1	Space Distribution at the University of California, 1998
68	4-2	Space Distribution at the California State University, 1998
69	4-3	Space Distribution in the California Community Colleges, 1998
73	4-4	Analysis of University of California 1997 Technical Enrollment Capacity (Based Solely on the 1970 and 1973 Legislative Space Standards)
74	4-5	Analysis of University of California 1997 Enrollment Capacity Adjusted for Reduced Capacity at the Berkeley and Los Angeles Campuses
75	4-6	Projected Capacity and Enrollment at the University of California, 1998-99 to 2010-11
76	4-7	Projected Capacity and FTES Enrollment, University of California 1998-99 to 2010-11
77	4-8	Projected Capacity and Enrollment at the University of California, with Normal Growth to Current LRDP Limits, Plus UC Merced, 1998-99 to 2010-11
78	4-9	Policy Changes Capable of Increasing Campus Capacity
81	4-10	Projected Full-Time-Equivalent Student Enrollment Capacity in the California State University (both funded and requested projects included), 1999-00 to 2001-02
82	4-11	Projected Enrollment Capacity in the California State University (Existing Inventory and Fully Funded Projects Only), 1998-99 to 2010-11
82	4-12	Projected Capacity and Enrollment in the California State University, 1998-99 to 2010-11
85	4-13	Comparison of Technical and Real Capacity in the California Community Colleges, with Projected Enrollments in FTES, 1998-99 to 2010-11
86	4-14	Comparison of Capacity and Enrollment in the California Community Colleges, 1998-99 to 2010-11
89	5-1	Comparison of Estimated Surpluses in “A Capacity for Growth” (1995) and “Riding the Tidal Wave” (1999)

93	5-2	Cost Assumptions for the University of California Capital Outlay Estimate, 1998-99 to 2010-11
94	5-3	Cost Assumptions for the California State University Capital Outlay Estimate, 1998-99 to 2010-11
97	5-4	Cost Assumptions for the California Community Colleges Capital Outlay Estimate, 1998-99 to 2010-11
98	5-5	A Summary of Annual Projected Capital Outlay Costs in California's Three Public Higher Education Systems, (Baseline Enrollment Projections)
100	6-1	Comparison of Forecast and Actual Changes in United States Gross Domestic Product, 1980-81 to 1998-99
101	6-2	Comparison of Gross Domestic Product (GDP) Forecasts with Actual GDP Growth, 1980-81 to 1998-99
101	6-3	Actual and Projected Real Growth in United States Gross Domestic Product, 1990 to 2001
102	6-4	Forecasts of Annual Growth in Real Gross Domestic Product by the UCLA Anderson School, the Congressional Budget Office, and the State Department of Finance (Various Periods)
105	6-5	State Treasurer's Historical and Projected Demographic, Economic, and Fiscal Data, 1987-88 to 2010-11
107	6-6	CPEC General Fund Revenue Forecast, 1998-99 to 2010-11 (Millions)
107	6-7	Projected General Fund Revenues, with High and Low Alternatives, 1998-99 to 2010-11 (Millions of $)
108	6-8	Actual and Projected General Fund Expenditures, 1998-99 to 2010-11
110	6-9	Comparison Between the Commission's Projections of General Fund Revenues and Expenditures, 1999-00 to 2010-11 (Millions)
113	7-1	General Obligation Bond Issues Voted on by the California Electorate, 1972 to 1998
115	7-2	Amortization of Current State Debt (Total State Non-Self Liquidating Debt = $36.2 Billion of August 1, 1999)
118	7-3	California's Current Debt as a Percentage of General Fund Revenues, 1999-00 to 2010-11
119	7-4	Amortization of a $400 Million General Obligation Bond Issue, 1998-99 to 2029-30

120	7-5	Simulation of General Fund Debt Service Payments Necessary to Amortize All Current Debt Plus $5, $6, or $7 Billion Annual Sales (Adjusted Annually for $2.5% Inflation)
123	7-6	Ten-Year Capital Outlay Needs as Identified by Various State Agencies, 1999-00 to 2008-09
124	7-7	Ten-Year Projected Shares of Capital Outlay Spending as Reported by the Department of Finance, 1999-00 to 2008-09

1 Executive Summary, Findings, and Conclusions

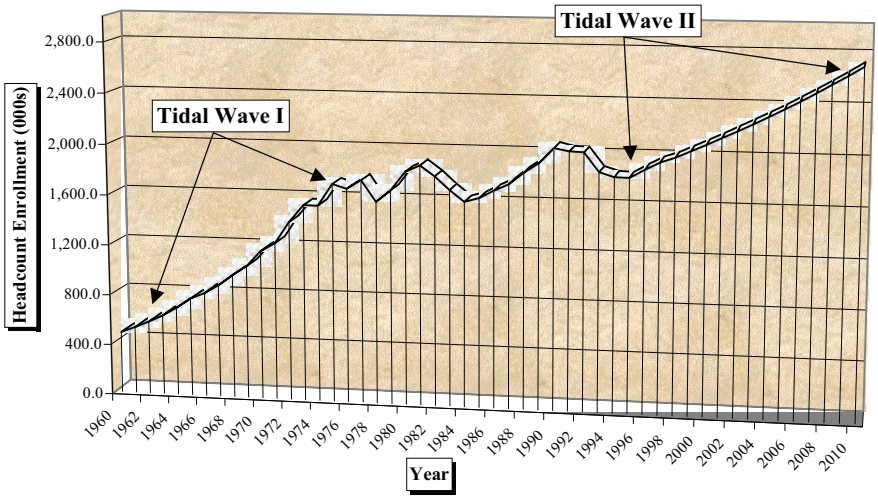
Executive summary

At the outset of the 21st Century, California faces the certainty of phenomenal demographic growth and change in an environment of prospective continued economic prosperity. Policy makers will be challenged in every quarter to anticipate and respond to these conditions. Decisions made today will shape the lives of all Californians tomorrow.

Nowhere is that challenge greater, or the stakes higher in terms of sustaining the State's future, than in higher education. Demographic changes, economic conditions, educational reforms, progress in preparing students from all groups and locales for college, and other factors will converge to produce historic increases in demand for higher education enrollment.

That projected demand raises questions about both the capacity at California colleges and universities to handle such increases as well as our ability and willingness to fund such growth from public sources. How we answer these and related questions will be critical in determining if California can provide for progress by sustaining the opportunity for quality education beyond high school. As the State's higher education planning and coordinating agency, the California Postsecondary Education Commission is vitally interested in helping find those answers. That is the central focus of this report.

DISPLAY 1-1 Headcount Enrollments in California Public Higher Education, 1960 to 1997; and Projected Enrollments, 1998 to 2010



Source: Department of Finance, Demographic Research Unit; Smelser, 1974.

California has been at a similar crossroads before and triumphed. In the three decades following World War II, a surge of students, termed Tidal Wave I, threatened to swamp the then-existing public higher educational facilities. The utility of the era's leaders' visionary response, including the development of the historic California Master Plan for Higher Education and the financing and construction of many, many new public college and university campuses, proved itself for decades. Concomitantly, the positive role of higher education -- both in serving students and, sparking technological innovation through campus-centered research -- in the State's subsequent overall economic and social gains is well documented.

Today, the question is whether California postsecondary enrollment growth will be "…moderate and steady by historical standards" as some contend (Legislative Analysts Office, 1999), or be the "Tidal Wave II" of burgeoning demand, on an order of magnitude exceeded only by the historic growth in the postwar years, cited by former University of California President Clark Kerr. California's historic college enrollment patterns, as well as the Commission's projected future growth, are shown in Display 1-1. It illustrates, and other data in this report support, the Commission's thesis that, not only is "Tidal Wave II" real, it is, rather than being imminent, already underway.

In carrying out its planning function (see Appendix B), the Commission has engaged in an ongoing assessment of higher education enrollment demand and the State's ability to accommodate it. The 1995 Commission report, *A Capacity for Growth: Enrollments, Resources, and Facilities for California Higher Education, 1993-94 to 2005-06* (June 1995), accurately projected significant increases in enrollment demand to 2005.

This new report updates those projections through the current decade to 2010, revealing an enrollment growth trend that is stronger still. Commission analysis supports a projected increase of 714, 753 students by the end of this decade (a 12-year period from fall 1998 to 2010). It is certain, too, that this will be the most diverse group of students in the State's history. In that light, the Commission has assessed the present capacity of higher education facilities, concluding that more public higher education capacity will be needed across the board before the end of the decade. Also updated in this report are the State's higher education capital outlay needs. These are now projected to add up to some $1.5 billion every year for the next 10 to 12 years, a significant increase over the Commission's 1995 estimates.

Among the questions raised by these findings for California policymakers and educators are the following:

- How much should California spend to maintain its current public colleges and universities?
- Should existing campuses be expanded, should new campuses be built and, if so, how many and where?
- Will new technologies aid in student instruction, expand distance learning, and impact enrollment demand?

- Will higher education operational innovations like more summer sessions and networked off-campus centers help expand capacity?
- Can California afford pay-as-you-go financing to expand public college enrollment capacity?
- How much bonded debt can California assume prudently, and how much should go to higher education?

This report, therefore, offers a thorough and solid analytical base and backdrop for a serious, ongoing public policy discussion concerning higher education in this decade and beyond. Based on this analysis, a number of Commission findings and some concluding remarks are set forth below. However, a more comprehensive policy discussion and set of recommendations are in a companion report, *Policy for Progress: Reaffirming California Higher Education, Accessibility, Affordability, and Accountability Into the 21st Century*. Together, these reports provide a comprehensive overview of the higher education challenges and the opportunities now before California.

Finding and crafting answers for these challenges will be complicated by other issues, including the expanding role of technology, the State's growing ethnic diversity, and increasing competition for public monies from areas like health care, transportation, the environment, and corrections.

A strong and resilient economy has produced a surplus in the 2000-01 State budget that may run as high as $9 billion. Such prosperity, if it continues, offers great opportunity to address the challenges posed by the projected enrollment increases. However, coming close after the worst recession in 60 years, there is ample reminder that such economic good times cannot and will not last indefinitely. Given these imperatives, how policymakers, educators, and the public respond will help determine if the State's higher education institutions can continue to provide the impetus behind, and the means by which, California will experience the progress that leads to the collective well being of its citizens.

Findings

The findings and conclusions in this report are those of the Commission alone. However, the Commission staff was aided in producing this report by numerous individuals, including members of a Long-Range Planning Committee with representatives from across the higher education spectrum (a complete list of acknowledgements and committee members is in Appendix A).

Based on the analyses in this report, the Commission offers the following findings:

Enrollment projections

1. California faces a powerful enrollment demand surge in the coming decade that is generally referred to as "Tidal Wave II." Between 1998 and 2010, the Commission anticipates an increase of 714,753 students (35.8

percent) prepared to seek enrollment at all levels in the public higher education sector.

This will be the most diverse student body in State history with respect to academic and career interest, demographic makeup, socioeconomic status, and preferred learning style. Representation of Latino and Asian students should increase significantly due primarily to their projected population growth. The numerical representation of African American and Native American students in higher education will increase substantially, although their proportional representation will remain virtually unchanged.

2. About 72.3 percent, or 516,801 more students, will result from population growth and changes in the class size of public high school graduates. The remaining 27.7 percent, or 197,952 students, will result from improved college participation rates.

3. Each public higher education system will experience substantial enrollment demand growth: 35.9 percent at the California Community Colleges (CCC), 37.1 percent at the California State University (CSU), and 32.4 percent at the University of California (UC). Undergraduates will account for about 95.2 of this demand. Undergraduate demand will total over 2.25 million by 2005, before climbing to 2.57 million by 2010.

Enrollment capacity

4. Overall, California public higher education has some current excess capacity but, without building new facilities and/or using existing facilities more efficiently, will soon be unable to accommodate all who would desire to enroll.

   The University of California is at capacity now, and will need space for an additional 49,329 full-time equivalent (FTE) students by 2010-11. The California State University has excess capacity for an additional 13,982 FTE students that will be gone by 2002-03. By decade's end, CSU will need space for an additional 68,416 students. The community colleges have excess capacity for 73,272 FTE students, which will be filled by 2002-03. Thereafter, the community colleges will need capacity for an additional 226,518 students.

   California's independent colleges and universities are growing rapidly too, although reported to now have about 23,000 unfilled student spaces, with another 12,300 spaces opening by 2010.

5. California public higher education has 116.7 million assignable square feet of space on 137 campuses, plus several dozen permanent educational centers: 45.6 percent at UC, 23.8 percent at CSU, and 30.6 percent in CCC.

6. Classrooms and teaching laboratories, the primary determinants of enrollment capacity, comprise 5.9 percent of the space at UC, 23.5 percent at CSU, and 44.5 percent of the CCC space.

Existing formulas that determine such enrollment capacity in California public higher education appear obsolete. The California State University is engaged in a promising major effort to revamp facilities planning and administration.

7. The Commission's estimates of unused capacity take into account the "mismatch problem," which reflects the fact that there is seldom a perfect fit between facilities and students, since some facilities exist at underutilized campuses. In addition, class size and facility size also experience mismatches.

Capital outlay costs

8. Overall, the Commission estimates that California will need to spend $1.5 billion per year for each of the next 10 to 12 years, and quite possibly longer, both to maintain the existing physical plant, and to provide for the strong enrollment demand expected during that time. The annual needs in the three public systems of public higher education are as follows: University of California – $618.1 million; California State University – $358.7 million; California Community Colleges – $526.1 million.

9. Campus construction and renovation costs have risen since 1995. The Commission estimates that the cost of new construction at UC will be $525 per assignable square foot (ASF), with renovation costs at $240 per ASF. Comparable costs at CSU are $390 and $240, respectively; costs at CCC are estimated at $350 and $210, respectively.

   The Commission's estimated cost of maintaining the existing higher education physical plant is now $681 million per year and, due to the factors noted above, are up significantly since 1995.

10. Between 1998-99 and 2010-11, the Commission now estimates that California public higher education will need to spend $821.4 million per year for enrollment growth, including the large initial expenditures for the new UC Merced campus. This was estimated at $400 million per year in 1995.

Economic and fiscal forecast

11. California is in the midst of an economic boom that may be unprecedented in its history. It has produced multi-billion dollar surpluses in the State treasury for the past several years, and promises to deliver more such surpluses in the future.

12. Most recent economic forecasts, including the Commission's 1995 projection, are conservative. However, a few economists and other analysts suggest that there is a confluence of demographic and technological factors that are reinforcing each other to produce the current level of growth in national Gross Domestic Product (GDP), which is averaging about four percent per year when adjusted for inflation.

13. Since 1994, the national and State economies have been marked by both strong growth and low inflation which, historically, is an unusual combination. The strong probability is that this has been made possible by extremely strong productivity gains created by personal computers running sophisticated software, and by a telecommunications revolution of which the Internet is the centerpiece. The productivity gains measured by the Department of Commerce may be, like those for GDP, underestimates of the real gains.

14. The Department of Finance has projected national GDP growth for the next 10 years at 2.5 percent, which is close to the consensus forecast. The Department's California General Fund growth assumptions relate closely to this national rate, and average 5.4 percent per year between 1998-99 and 2010-11. The Commission believes that it is much more likely that real GDP growth will be close to four percent, and that General Fund growth will, accordingly, be greater than currently predicted, producing surpluses through at least 2008, and perhaps longer. It is likely that the General Fund will grow, at least through 2008-09, at a rate of 6.5 percent per year.

Debt capacity

15. A 1999 State Treasurer report, *Smart Investments*, suggests that California's current ability to finance general obligation bonds and other debt instruments has grown because of the strong economy. There have been 11 elections for general obligation bonds in the past three decades, of which eight have passed. In general, the losing measures came during recessions or periods of economic uncertainty (1976, 1990, 1994). The size of the bond issue appears to bear no relation to the outcome of the election.

16. As a general rule, California should not permit debt service (principal and interest repayments on bonds and related debt issues) to exceed 6.0 percent of General Fund revenues. Present debt service is 3.8 percent, based on 1999-00 revenue projections. Following this rule, and based on the Commission's revenue projections, California could sell over $5 billion in General Obligations bonds each year, assuming voter approval, an amount exceeding the total indicated necessary by State agencies, excluding the State Department of Transportation.

17. The State Treasurer notes in that report that selling sufficient bonds to raise the debt service to five or six percent might place undue burdens on the General Fund, recommending that California limit itself to selling between $3 and $3.5 billion in bonds per year. However, with the Commission's expanded General Fund projections and a modest expansion of debt service levels, it appears that California could afford annual sales of $4.5 billion.

    Because public higher education's share of total statewide capital outlay need, excluding transportation, is between 20 and 25 percent, the three

systems could expect to receive about $1 billion per year, assuming voter approval of the bond issues at these projected levels.

Conclusions

As it enters the 21st century, California must prepare for an enrollment surge in higher education that has only one meaningful precedent in its history: the great flood of post-World War II and "Baby Boom" entrants that became known as the enrollment "Tidal Wave." That group swelled the existing public campuses – and led to the creation of dozens more in the three systems – over a period of 30 years that can easily be divided into two eras. The first was the 1945 to 1960 post-war era, with the second coming between 1960-1975 when the baby boomers matriculated, and California achieved a worldwide reputation for wisdom and foresight through its *Master Plan for Higher Education in California*. The challenge of growth faced then was unprecedented, but the challenge for California's future may be no less of a test of commitment and resource allocation.

The Commission hopes that the present generation of policy makers will exercise as much prudence and good judgment as those of previous eras. However, if they are to do so, they must be given a clear picture of the challenges ahead. Such is the primary purpose of this report, to define the challenge, and to define as well the resources that will be available to meet it.

It is likely that the present technological and communications revolution will bring further changes at a rapid pace, and just when the policy leadership faces all of the usual challenges associated with demographic and economic expansions. Yet, in spite of the challenges to be faced in the next decade, the Commission believes there are many reasons for Californians to be optimistic. As great as the challenge is of finding the necessary resources to meet the Tidal Wave II enrollment demand, there is ample reason to believe the resources will be present to do the job.

Higher education planning has been an ongoing Commission concern, although it has not always expressed such optimism. In 1995, the Commission concluded that there was almost no way to meet the capital outlay needs of higher education identified at the time. Today, with the continuing economic boom, and in spite of the fact that the needs have grown dramatically from $1.0 billion per year to $1.5 billion per year, it is time to alter that point of view. This is not to say that California can, or should, meet all of higher education's capital outlay needs by passing ever greater general obligation bond issues, but it does appear that bonds can now meet at least two-thirds of the need, and perhaps more. For the remainder, there are some obvious candidates.

For the community colleges, there is a large reservoir of unused debt capacity at the local level, a capacity that exists because of the great difficulty in achieving a two-thirds vote for bond approvals. If that requirement is reduced to a simple majority, as is currently proposed in Senate Constitutional Amendment No. 1 (O'Connell), it would be a relatively simple matter to require a 50-50 match between the State and local community college districts (an initiative for a simple majority failed on the March 2000 ballot). Such

changes as those might add several hundred million dollars to the available pool of funds, and virtually close the gap between the need and the available resources. It is likely that private fund raising, particularly at the University of California, could raise all of the remaining funds needed by that system.

The current general obligation bond issue, Proposition 1A, provided $2.5 billion in capital outlay funding over a four-year period that ends with the 2001-02 fiscal year. That amount provides the three public systems with $625 million in funding per year, far short of the need identified in this report. When these resources are expended, it is likely that a new issue will be offered for a vote, probably in November 2002. If it is again a four-year offering, the Commission believes the amount should be for $4 billion, to be expended at the rate of approximately $1 billion per year. If the requirement for super majorities for community college elections cannot be relaxed, then the Legislature should consider a larger bond issue of about $5 billion. Even an amount that large, given the fiscal projections contained in this report, should not unduly strain General Fund resources.

The Commission also recognizes that recent advances in information technology and digital electronics are creating exciting and unprecedented opportunities for enhancing teaching and learning at all instructional levels. Although distributed learning arrangements, in particular, are providing students with greater flexibility and options for completing their educational goals, statewide planning efforts are needed to tie such arrangements to the student access challenges resulting from the burgeoning growth in new student demand. Enrollment issues facing higher education must be addressed by a combination of expanded physical facilities, increased uses of existing physical resources, and greater use of information technology. In its next technology study, the Commission intends to consider in greater depth how various facets of technology-mediated environments can enhance both student access and success.

California's Master Plan has rested for almost 40 years on a tripod about which there was been a wide and resilient consensus: accessibility, quality, and affordability. During past college enrollment surges, resources have been arrayed to build the necessary facilities. When recessions have necessitated resource reductions that have an impact on quality, California has always found a way to recoup before permanent damage was done. And, when student fees escalated rapidly – usually due to economic reversals – California has greeted better times with fee reductions or a refusal to impose further increases.

In the immediate future, the two booms – in enrollment demand and economic growth – offer a challenge to policy makers and educators that is unique in most lifetimes. It is not just the singular challenge of accommodating enrollment growth, nor the challenge of managing a resilient economy; there is ample precedent for both. Today's challenge is not only to find a way to enroll the new tidal wave of students and to spend probable budget surpluses wisely, it is also the challenge of finding ways to do business dif-

ferently, to bring about changes in both economic and educational cultures occasioned by technology's overwhelming effects on everyone's lives.

More than anything, this era encompasses not only the trials occasioned by growth, but one of those exceedingly rare windows of opportunity where resources grow at such rates that one generation is given the chance to build a solid foundation for the next. An earlier generation, and the only one that ever saw economic growth at the levels anticipated, and already experienced, for this one – the generation that governed from 1900 to 1930 – failed in that responsibility as the Great Depression wiped out most of what had been gained. This generation has a similar opportunity, one that we hope will be seized and administered with greater wisdom.

2 Historic Precedent, Prior Commission Projections, New Challenges

Historic precedent

During most of the mid-portion of the 20th century, dramatic increases in California higher education enrollment demand, and the necessity for educators and policymakers to respond, was nearly constant. A review of this historic precedent provides a prospective for more current trends.

That a real wave of students was coming was certain to the post-WWII planners who oversaw the first phase of Tidal Wave I higher education enrollment demand that occurred between 1945 and 1960. The Master Plan Survey Team also responded in that era by creating the *California Master Plan for Higher Education* and alerting the Governor and the Legislature to a need to create new campuses to house the growing cadre of students who would make up the second swell of the wave -- the period between 1960 and 1975. College enrollment increases slowed considerably for the next 20 years. Today, if enrollment demand were projected to be no more than that experienced over the last several decades, a strong argument could be made that only routine measures need be taken to provide for a slowly growing future higher education complex. But if a second great surge of students is coming -- and Commission analysis in this report shows clearly that Tidal Wave II is reality -- then business-as-usual will clearly be insufficient.

Growth in higher education enrollments between 1950 and 1997 is shown in Displays 2-1 and 2-2.[1] For the University of California and the State Colleges (as they were then called), however, there was steep growth between 1945 and 1950, as GI Bill-funded WWII veterans enrolled. University enrollments grew from 30,913 to 42,639, a 37.9 percent increase; State Colleges grew from 7,907 to 30,502 in that same five-year period, a 385.8 percent increase. From that point, the two displays offer graphic evidence of the magnitude of the first tidal wave.

The second great enrollment surge from 1960 to its crest in 1975 occurred when 1.2 million additional students enrolled in California higher education (shown previously in Display 1-1). Growth slowed for the next 20 years, even showing overall declines in half of those years. Overall, total enrollment between 1975 and 1995 grew from 1.7 million to 1.8 million, an increase of 6.5 percent for the entire period.

[1] It would have been useful to go back to 1945, but data for the community colleges in those years are too unreliable.

DISPLAY 2-1 Higher Education Enrollments, 1950 to 1997

Year	Total Headcount Enrollment	Annual Percent Change	Year	Total Headcount Enrollment	Annual Percent Change
1950	206,921	N/A	1974	1,550,617	N/A
1951	199,890	-3.4%	1975	1,724,201	11.2%
1952	207,002	3.6%	1976	1,688,060	-2.1%
1953	246,385	19.0%	1977	1,760,624	4.3%
1954	274,596	11.4%	1978	1,593,875	-9.5%
1955	302,294	10.1%	1979	1,686,732	5.8%
1956	343,804	13.7%	1980	1,833,739	8.7%
1957	382,001	11.1%	1981	1,888,925	3.0%
1958	426,691	11.7%	1982	1,806,712	-4.4%
1959	444,516	4.2%	1983	1,702,860	-5.7%
1960	484,292	8.9%	1984	1,612,633	-5.3%
1961	530,285	9.5%	1985	1,646,142	2.1%
1962	579,319	9.2%	1986	1,708,552	3.8%
1963	632,404	9.2%	1987	1,761,466	3.1%
1964	696,784	10.2%	1988	1,853,369	5.2%
1965	777,548	11.6%	1989	1,928,834	4.1%
1966	826,973	6.4%	1990	2,048,610	6.2%
1967	891,746	7.8%	1991	2,024,737	-1.2%
1968	975,832	9.4%	1992	2,022,148	-0.1%
1969	1,053,361	7.9%	1993	1,873,141	-7.4%
1970	1,177,188	11.8%	1994	1,838,965	-1.8%
1971	1,243,467	5.6%	1995	1,835,372	-0.2%
1972	1,414,794	13.8%	1996	1,899,921	3.5%
1973	1,550,617	9.6%	1997	1,958,976	3.1%

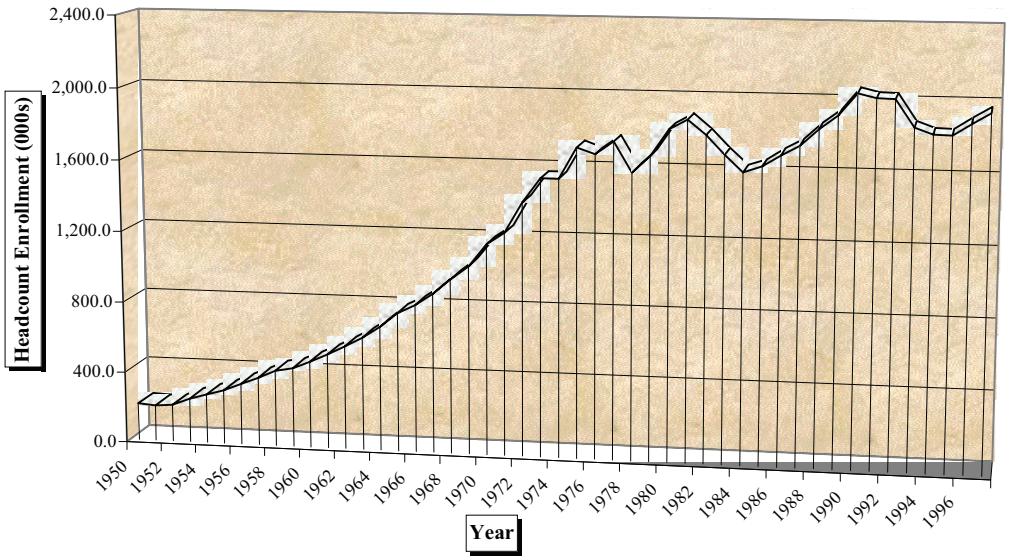
Source: Department of Finance, Demographic Research Unit; Smelser, 1974.

Prior Commission Projections: *A Capacity for Growth*

In 1995, the Commission presented an ordered framework for the enrollment growth that was, even then, being widely predicted. That report, *A Capacity for Growth* (CPEC, 1995b), projected total enrollment growth in the three public higher education systems of 455,190 headcount students between Fall 1993 and Fall 2005, a 12-year growth rate of 1.8 percent per year.

These 1995 enrollment projections have proven accurate, as shown in Display 2-3 below, and were so chiefly because the related computer model accounted for two primary variables: (1) first-time freshman participation rates by racial/ethnic group; and (2) persistence rates among previously enrolled students. Other factors, such as community college transfers, out-of-state enrollments, and special action admissions were also considered, but the projection accuracy depended heavily on the two primary determinants of enrollment size.

DISPLAY 2-2 Headcount Enrollments in California Public Higher Education, 1950 to 1997



Source: Department of Finance, Demographic Research Unit; Smelser, 1974.

Once the enrollment demand projection was finalized, space needs could be assessed. The Commission did this through a thorough analysis of both existing physical inventories and the space and utilization standards employed to measure overall capacity (see Appendix B for the function and purpose of long-range planning). That analysis suggested that, although considerable excess higher education capacity existed in 1994, due primarily to enrollment losses occasioned by the recession and related budget reductions, it would soon evaporate as the enrollment surge began and improved budgetary support permitted greater access. In addition, the Commission noted that the existing physical plant of public higher education required a large allocation of resources on a regular basis just to maintain its usefulness. In total, the Commission estimated that California needed to spend about $1 billion per year, every year, on both existing and new facilities for at least the 12-year duration of the estimate. Of that amount, about $600 million per year was needed just to maintain the existing physical plant, with another $400 million per year needed for the projected increased college enrollment demand.

The projection of $1 billion per year for capital outlay surprised some, particularly because actual capital outlay appropriations had been running at less than half of that amount in most years (Display 2-4). There was, however, little doubt on the part of knowledgeable analysts and policy makers that the Commission's funding estimate was reasonably accurate. A year later, the Department of Finance reported that the total capital outlay need for California higher education was even higher at about $1.4 billion per year (DOF, 1996).

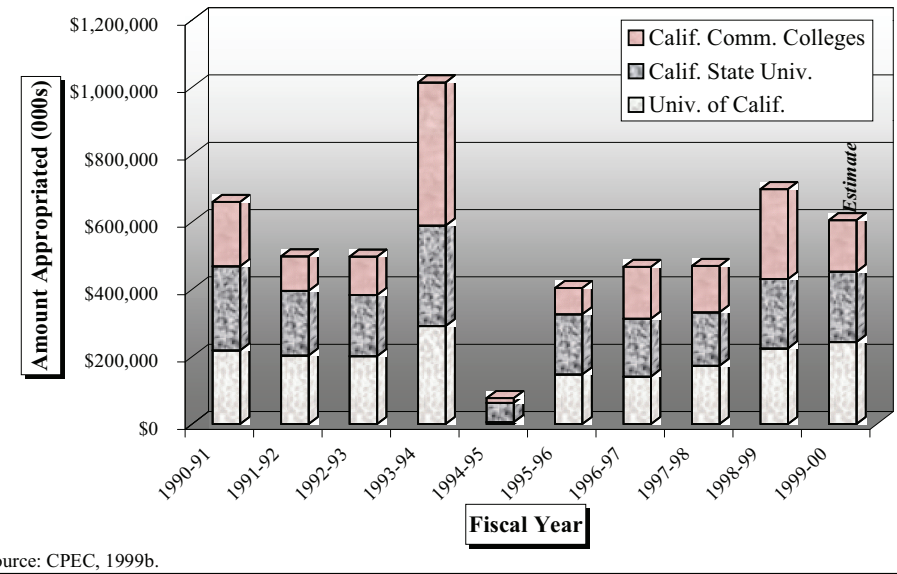
DISPLAY 2-3 Comparison of 1994 and 1995 Enrollment Projections by the California Postsecondary Education Commission (CPEC) and the Demographic Research Unit of the Department of Finance (DRU)

Year (Fall Term)	Actual	CPEC Baseline	DRU[1] 1994 Series	Percent Difference	
				CPEC	DRU
University of California					
1994	121,940	128,873	121,800	1.59%	-0.11%
1995	123,948	125,404	120,900	1.17%	-2.46%
1996	126,260	126,936	121,800	0.54%	-3.53%
1997	128,976	128,468	124,300	-0.39%	-3.63%
1998	132,700	130,004	127,400	-2.03%	-4.00%
California State University					
1994	258,960	261,508	250,600	0.98%	-3.23%
1995	264,023	261,474	245,300	-0.97%	-7.09%
1996	272,642	264,042	247,200	-3.15%	-9.33%
1997	276,054	268,894	254,000	-2.59%	-5.54%
1998	278,597	273,746	261,700	-1.74%	-6.45%
California Community Colleges					
1994	1,357,615	1,337,085	1,400,000	-1.51%	3.12%
1995	1,336,300	1,355,358	1,418,200	1.43%	6.13%
1996	1,407,335	1,374,562	1,430,500	-2.33%	1.65%
1997	1,453,000	1,435,063	1,454,200	-1.23%	0.08%
1998	1,475,000	1,488,052	1,485,600	0.88%	0.72%

1. Demographic Research Unit, Department of Finance.

Source: Demographic Research Unit; CPEC Staff Analysis

DISPLAY 2-4 Bond Appropriations for California Public Higher Education, 1990-91 to 1999-00



Source: CPEC, 1999b.

California was not prepared in 1995 to finance sums of that magnitude, nor were there any indications that bond issues large enough to do so were either economically feasible or politically saleable. The Commission's analysis suggested then that the State could probably afford to sell about $500 million in bonds per year for higher education without exceeding a debt service ceiling generally accepted to be 6.0 percent of General Fund revenues. At that time, this forced the Commission into an uncomfortable conclusion:

> While the data indicate that support budget funding may be minimally adequate, the prospects for capital outlay funding are exceptionally poor. Given an annual need of approximately $1 billion -- about 61 percent to maintain the existing physical plant, and about 39 percent for expansion -- the Commission can find no combination of practical possibilities that would produce savings or revenue sufficient to satisfy the total need. Under the best of circumstances, it may be possible, through strong local efforts from community college districts, greater fund raising by the two university systems, the passage of bond issues, and more efficient operation, to raise about half to two-thirds of the needed funds (CPEC, 1995b, p. 10).

Most other subsequent projections of capital outlay need have confirmed the Commission's estimate, if not raised it. Voters also approved a $9.2 billion education bond issue in November 1998 (Proposition 1A), of which $2.5 billion was earmarked for public higher education, and available 1998-99 and 2001-02, with approximately equal shares to the three public systems. Of the total, $165 million will be allocated for new campuses, newer and growing campuses, and educational centers, all in the 2000-01 and 2001-02 fiscal years. The anticipated expenditure of $625 million per year for public higher education is still far short of the $1 billion or more the Commission believed was necessary in 1995.

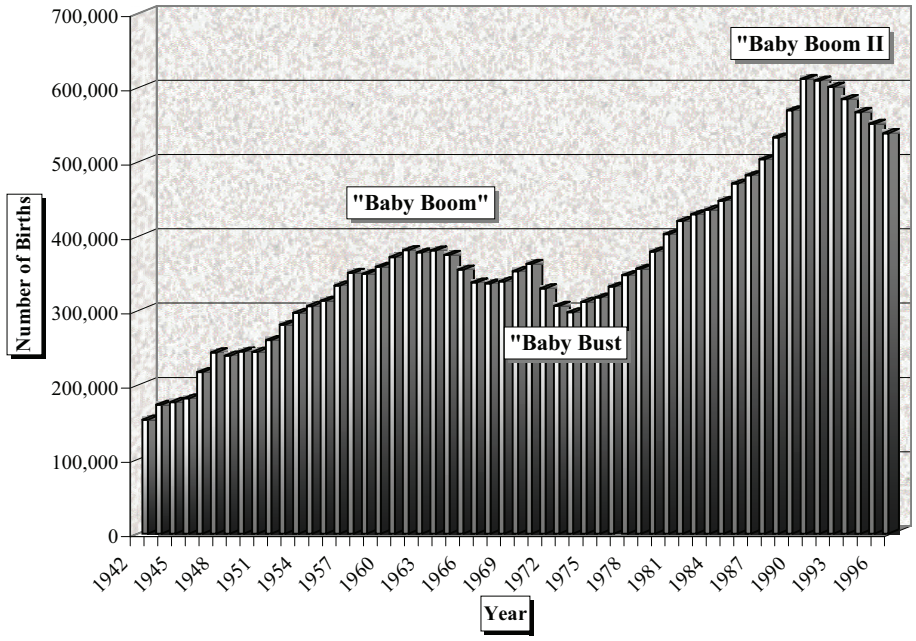
The challenge of growth

As California looks to its future, the dominant theme is growth: in population, in school enrollments, in higher education enrollments, and in the State's economy. Display 2-5 gives one of the primary reasons why this is so. It shows birth rates from 1942 to 1996, clearly demonstrating the great surge known as the "Baby Boom" and its offspring, the "Baby Boom Echo." Experts differ about the time span of the first boom, but the chart shows that it crested in 1963, and did not fall appreciably until 1966. It would be fair to state that the boom peaked between 1957 and 1965, years that explain a great deal about what is happening in California higher education today, and what will happen in the near future.

People born at the peak of this era reached their normal child-producing years between 1982 and 1990. Their children will reach the primary college-going age groups between 2000 and 2008, which is the core of Tidal Wave II, and the primary reason for the tremendous enrollment demand surge projected in this report between 1998 and 2010, when California's higher education growth rate is projected to be over 2.5 percent per year in the three public

systems. However, birthrates alone do not explain this strong growth in enrollment demand.

DISPLAY 2-5 California Birth Rate History, 1942 to 1996



Today, both the United States and California are in the midst not only of a demographic boom among primary college-going age groups, but also a great economic boom that has been produced largely by their parents. These two generations, the younger about to enter higher education, and the older, which ranges in age from about 40 to 55, now in its prime earning and spending years, are largely responsible for this multi-faceted array of growth phenomena. The latter group has, since the early 1990s, helped produce an economic renaissance in America that has generated surpluses in both the state and national treasuries, with some forecasters predicting even greater economic growth to come in the next decade.

In the past few years, real growth in the United States Gross Domestic Product has been about 4.0 percent per year, a figure considerably above historical norms, and one thought to be inflationary under traditional economic models. This growth rate has produced a soaring stock market, the lowest unemployment rate in at least a generation, a nationwide construction boom, and even the prospect of retiring a substantial portion of the national debt, all with minimal inflation. In California, as in many other states, it has also prompted consideration of expanded debt financing, perhaps even by enough to finance the State's total infrastructure needs, including highways, parks, water projects, prisons, schools, and colleges and universities.

Many have speculated that the current non-inflationary growth surge has been energized by technology-driven productivity increases, increases as sub-

stantial as those created by the railroads, automobiles, the assembly line, electrification, and the telephone in the late 19th and early 20th centuries. Those inventions and others changed America from a large agrarian economy into a world power over a 30- to 40-year period and, while that great boom ended terribly in the Great Depression, many of its effects are still in evidence today. As much may be said of the current revolution in computers, software, telecommunications, financial services, engineering, medicine, biotechnology, and a host of other activities. Many have expressed hope that this boom, when it ends, will do so without the wholesale disruption of society experienced in the 1930s. However it ends, the current economic boom will affect the United States and California for many decades into the future.

Relatedly, a number of planners and futurists have noted that workers in the future will have to be retrained as many as six or seven times during their careers (Dolence and Norris, 1995). That need has swelled higher education's enrollments even further, and will probably continue to do so for many years to come.

In the next five chapters, the Commission sets forth its projections for increasing enrollment demand already evident in higher education (Chapter 3), analyzes the current enrollment capacity of the State's colleges and universities (Chapter 4), assesses the capital outlay costs estimates associated with maintaining and expanding the physical plant needed to meet California's future higher education needs (Chapter 5), further examines the current economy (Chapter 6), and looks finally at California's current and potential bonded debt capacity (Chapter 7).

3 Measuring the Wave: California Public College and University Enrollment Demand to 2010

Introduction

This section contains enrollment demand projections for California public colleges and universities between 1998 and 2010. The Commission's 1995 enrollment study, which covered the period from 1993 to 2005, was undertaken just as the State and nation were beginning to recover from the recession of the early 1990s that coincided with rising student fees, declining State support for higher education, and declining college participation.

However, California's six consecutive years of economic expansion since 1994 has enabled lawmakers to begin stabilizing student fees and expenses and to start restoring vital educational support services. Given that the pursuit of intellectual development, curiosity, and discovery is generally recognized as the cornerstone of a vibrant American economy and society, it is not surprising that the State's present economic recovery has been marked by a return of undergraduate participation rates toward peak pre-recession averages of the late 1980s. Many educational planners, however, are amazed to find college participation returning to historical averages at a brisk pace slightly more pronounced than anticipated by the Commission in 1995.

In deriving its enrollment demand projections, the Commission consulted extensively with enrollment planners from each of the State's public higher education systems and with analysts from the Demographic Research Unit of the Department of Finance (DRU). Although the Commission and DRU have reached similar conclusions about the State's overall enrollment demand outlook through year 2010, each agency used somewhat different methodologies in estimating student demand.

The Commission's model can be characterized best as a *bottom-up* approach to enrollment demand modeling, whereas DRU's model might be described best as a *top-down* approach. With respect to four-year public universities, the bottom-up approach is based on the premise that the majority of undergraduate students that will be enrolled in public institutions in year 2010 have not yet begun college. Because most University of California (UC) undergraduates either graduate or leave permanently within seven years, the University's enrollment in 2010 will likely consist of all continuing students who are expected to begin matriculating in year 2003 or later. Because the California State University (CSU) enrolls significant numbers of part-time working adults, and because CSU students usually graduate or leave permanently within eight years, the State University's enrollment in 2010 likely will con-

sist of all continuing students who are expected to begin matriculating in 2002 and later.

The Commission made analytic judgments in estimating the future participation rate of various groups of first-time freshmen and transfer students, and then incorporated these rates, along with the most current information available on college persistence and graduation patterns, into a series of *life-tables* to simulate the likely enrollment life-span and history of undergraduate students from entry to final departure from an institution. The resulting long-range enrollment demand estimates, covering the out years 2005 to 2010, were compared against each system's current undergraduate population base to derive an annual average compounded change rate that was applied over the immediate five-year period, 1999 to 2004. In contrast, the top-down approach involved applying continuation and graduate rates to each system's present undergraduate population, and then in a forward manner, adding-in successive projected cohorts of entering freshmen and transfer students to derive expected enrollment levels in 2010.

Both approaches used similar methods to estimate community college enrollment demand. The estimation process involved reviewing historical community college rates by age-group and ethnic-racial group and deriving projected rates by considering pertinent factors related to educational equity, systemwide strategic planning initiatives, intersegmental compacts, and the economic and labor market needs of the state. A complete description of the Commission's enrollment demand model is provided in Appendix C.

Enrollment demand overview

Based on a careful analysis of recent demographic, cognitive, and socioeconomic factors presumed to influence going-college behavior, the Commission forecasts an almost unprecedented 35.8 percent increase in student demand for the State's public colleges and universities by Fall 2010. As shown in Display 3-1, total student public enrollment is expected to climb from a student headcount of 1,998,374 in Fall 1998 to 2,713,127 by Fall 2010. The percentage change in student demand translates to a numerical increase of 714,753 more students than in Fall 1998. The Commission's Baseline Forecast is close to the most recent enrollment estimates prepared by DRU (Display 3-2). Nearly three-fourths of new student demand is expected to result from the State's projected population growth and changing demography. If college-going rates remain constant at current Fall 1998 levels, as reflected by the Commission's Low Alternative Forecast, California would need to prepare for a minimum 25.9 percent increase in college and university enrollments, or 516,801 additional students (Display 3-3).

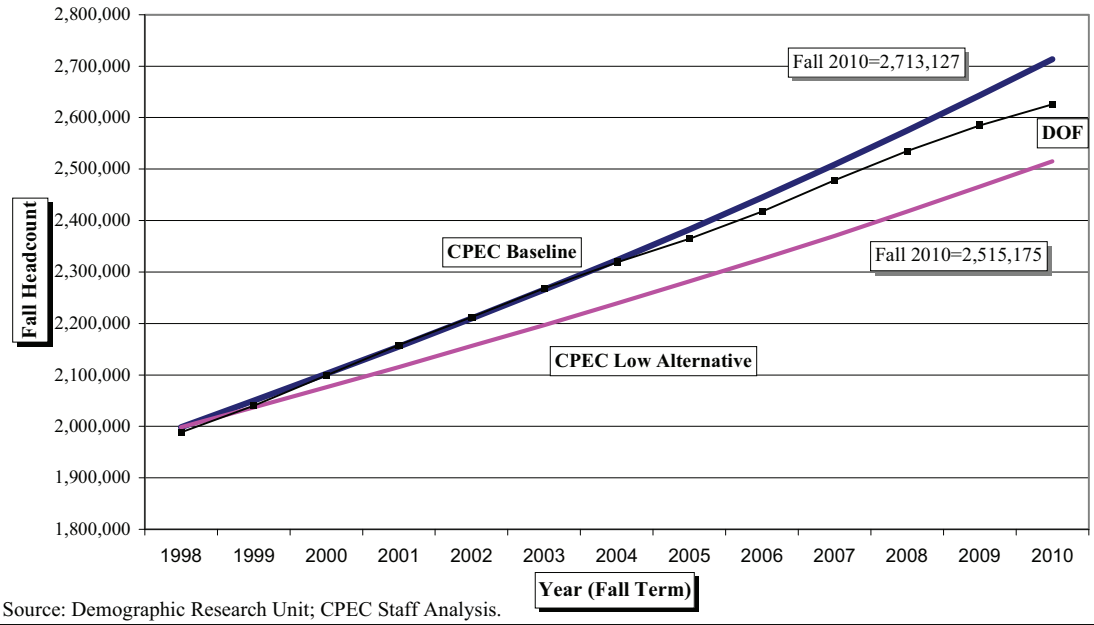
Undergraduate demand estimates are expected to account for about 97.5 percent of new student enrollments (Display 3-4). The undergraduate estimates were derived in part through consideration of four general assumptions related to student preparedness and the state's demographic and economic outlook (Display 3-5). Assumptions that are specific to each postsecondary

DISPLAY 3-1 Higher Education Enrollment Demand, California Public Colleges and Universities, Fall 1998 to Fall 2010 (Headcount Students) 1999 CPEC Baseline Projection Series (Undergraduate and Graduate)

Year (Fall Term)	California Community Colleges	California State University	University of California	Grand Total
1998	1,475,000	349,804	173,570	1,998,374
1999	1,512,567	359,401	177,741	2,049,709
2000	1,551,199	368,919	181,546	2,101,664
2001	1,590,929	378,298	185,514	2,154,741
2002	1,631,790	388,039	189,692	2,209,521
2003	1,673,819	397,773	193,971	2,265,563
2004	1,717,052	407,750	198,436	2,323,238
2005	1,761,525	418,018	203,085	2,382,628
2006	1,807,279	429,568	207,980	2,444,827
2007	1,854,353	441,403	213,065	2,508,821
2008	1,902,789	453,388	218,395	2,574,572
2009	1,952,629	466,433	223,952	2,643,014
2010	2,003,918	479,485	229,724	2,713,127
Percent Change	**35.9%**	**37.1%**	**32.4%**	**35.8%**
Additional Students	**528,918**	**129,681**	**56,154**	**714,753**

Source: CPEC Staff Analysis.

DISPLAY 3-2 Higher Education Enrollment Demand California Public Colleges and Universities Fall 1998 to Fall 2010



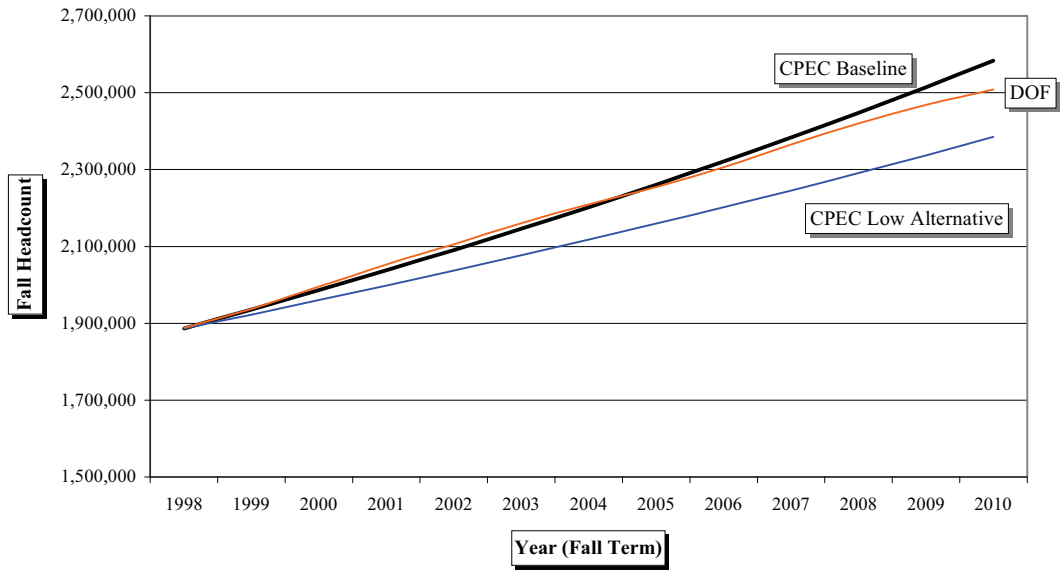
Source: Demographic Research Unit; CPEC Staff Analysis.

DISPLAY 3-3 Higher Education Enrollment Demand, California Public Colleges and Universities, Fall 1998 to Fall 2010 (Headcount Students) 1999 CPEC Low Alternative Projection Series (Undergraduate and Graduate)

Year (Fall Term)	California Community Colleges	California State University	University of California	Grand Total
1998	1,475,000	349,804	173,570	1,998,374
1999	1,502,748	357,732	176,706	2,037,186
2000	1,531,095	365,505	179,427	2,076,027
2001	1,560,054	373,061	182,260	2,115,375
2002	1,589,640	380,894	185,249	2,155,783
2003	1,619,869	388,634	188,282	2,196,785
2004	1,650,755	396,528	191,443	2,238,726
2005	1,682,315	404,620	194,724	2,281,659
2006	1,714,564	412,742	198,185	2,325,491
2007	1,747,519	421,124	201,767	2,370,410
2008	1,781,198	430,435	205,520	2,417,153
2009	1,815,617	440,800	209,424	2,465,841
2010	1,850,794	450,920	213,461	2,515,175
Percent Change	**25.5%**	**28.9%**	**23.0%**	**25.9%**
Additional Students	**375,794**	**101,116**	**39,891**	**516,801**

Source: CPEC Staff Analysis.

DISPLAY 3-4 California Public Higher Education Undergraduate Enrollment Demand Fall 1998 to Fall 2010



system are addressed later in appropriate subsections of this chapter. The graduate demand estimates cited in this report were developed by DRU and are expected to account for about 2.5 percent of the total student demand. The Commission, however, increased DRU's graduate projections for the University of California to account for 12,207 students expected to seek enrollment each year in the system's graduate health science programs.

Demographic determinants of demand

The Commission's enrollment projections are heavily influenced by anticipated changes in the size and composition of recent high school graduates, and by changes in adult college-age populations. Approximately 72 percent of the projected increase in enrollment demand is expected to result from population growth alone.

According to the Department of Finance's DRU report, *County Population Projections with Race/Ethnic Detail* (DOF, December 1998), California's total population will nearly double over the series' 50-year projection period – from 29.8 million in 1990 to 58.7 million by the year 2040. By 2011, the Department of Finance predicts that more than 40 million people will live in California. Moreover, the state's population will continue to become more diverse. By July 2001, no single racial/ethnic group will comprise a majority of the population. California also will continue to see changes in college-age population groups that will drive programmatic and capacity decisions for all public institutions of higher education. The growth and diversity anticipated in California's population as a whole reflect the changes in student demand that are anticipated in public higher education through 2010.

Although the State's college-age population (15 to 59 years of age) is expected to increase substantially between 1999 and 2010, it is not the first time California has faced a significant increase in enrollment demand. The State's first student tidal wave, driven by the post-war GI Bill enrollees and dramatic birth-rate increases, crested in 1963. Display 2-5 in the previous chapter shows this "Baby Boom" period and the declines of the 1970s. Children of the "boomers" -- the so called "baby boom echo" -- is the group driving the current demand for more classrooms and teachers in the State's public schools, and that will fuel the demand for higher education through 2010, and quite possibly beyond.

DRU also estimates that there will be 373,533 public high school graduates by the year 2010. This represents an overall 29.2 percent increase in the number of California public high school graduates between 1997-98 and 2010, and an annual average growth rate of 2.7 percent beginning in 1998. Display 3-6 shows high school graduates by ethnicity through 2008. At the national level, it is estimated that there will be approximately 3.2 million high school graduates by 2007-08 (WICHE, 1998).

DISPLAY 3-5 General Assumptions for the Baseline Forecast

Demographic outlook

It is assumed that the most recent population projections prepared by the Department of Finance will remain reasonably accurate and reliable over the next 12 years. In particular, it is anticipated that California's traditional college-age cohort (age 18 to 24) will grow more than twice as rapidly as the State's general population. Within this age category, the Latino population is expected to increase by 59 percent, thereby adding 601,755 persons to California's base population, while Asian ethnic categories collectively are projected to increase by 47 percent, thereby adding 545,310 persons to the State's population. The growth rates of all other ethnic-racial groups are expected to affect the size of California's traditional college-age cohort only moderately. A complete discussion of the State's demographic outlook is provided in the next section of this chapter.

College persistence and graduation rates

With few exceptions, it is assumed that current college persistence and graduation rates by ethnic-racial group (African American, Asian, Latino, Native American, and White/Other), admission status (first-time freshmen or first-time transfer), and admissions basis (regular or special action admit) will remain fairly constant throughout the projection period. Differential graduation rates of various student groups are expected to have an appreciable impact on future enrollment levels. For example, a projected persistence rate of .80 means that 80 percent of an entering freshmen class is expected to re-enroll each semester until graduation, whereas a persistence rate of .50 means that half the students of an entering freshmen class are likely to leave an institution permanently before earning a degree, and thereby, generate less student demand in the long run.

Outreach improvement programs and student preparation

It is assumed that the college preparedness and academic achievement of primary and secondary students will remain a high priority of both the California Legislature and the State's public postsecondary systems. During the 1998-99 budget year, the Legislature provided over $60 million in additional funds to local school districts to expand academic preparation programs. Governor Davis has pledged to support and expand these efforts even further during his administration. Both the University of California and State University intend to expand their outreach programs to address the full range of cognitive and environmental factors associated with college eligibility and student success. The two systems also plan to place greater emphasis on its early outreach programs that target students beginning in the 4th grade. The Commission assumes that the student improvement programs and the expanded outreach efforts will begin demonstrating positive program effects during the later part of the projection period.

Economic growth

California's economic expansion and growth is expected to remain strong well into the next decade. Accordingly, the Commission anticipates personal income to increase by 7.0 percent per year at least through 2008, which translates to a State General Fund revenue growth rate of about 6.5 percent per year. This means that student fee increases are likely to be moderate and predictable in the near future, thereby making a college education affordable for more California families. A healthy national economy also is expected to keep interest rates on federal student loan programs reasonably low (i.e., less than 8.25 percent).

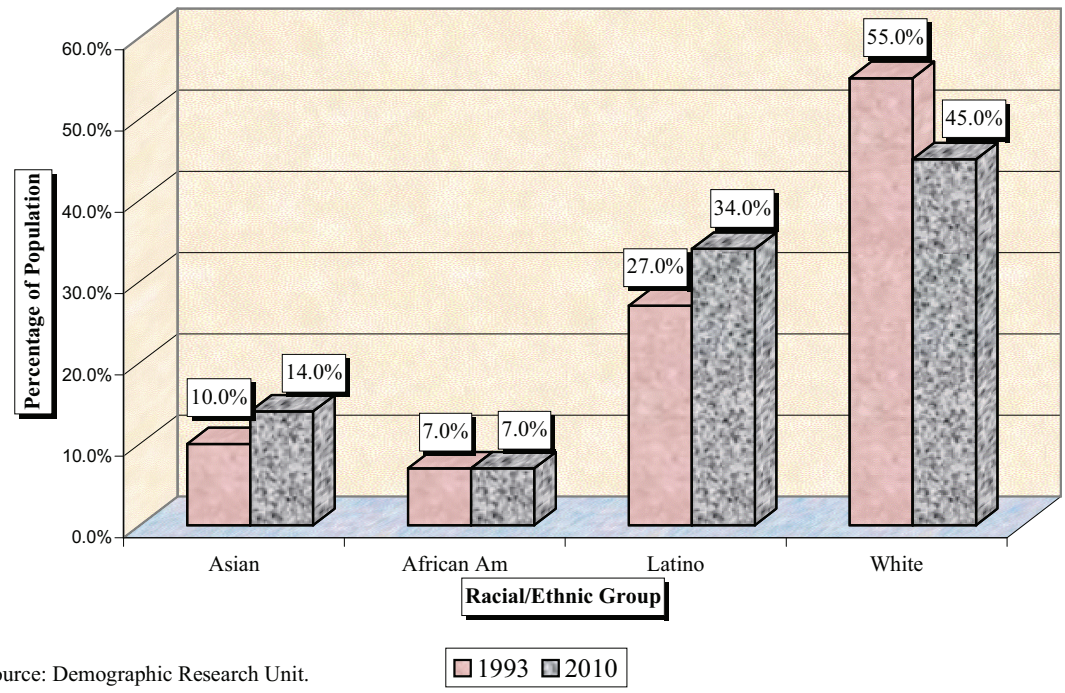
DISPLAY 3-6 1998 Department of Finance Projections of California Public High School Graduates by Ethnicity, in Numbers and Percentage Change, 1997-98 to 2009-10

Academic Year	African American	Asian	Latino	Native American	White	Total
Numbers						
1997-98	21,558	42,426	89,416	2,524	129,923	285,847
1998-99	22,334	44,384	94,558	2,591	133,666	297,533
1999-00	22,437	45,874	97,284	2,670	136,452	304,717
2000-01	22,798	46,714	100,299	2,679	137,924	310,414
2001-02	23,358	46,910	104,214	2,846	138,216	315,544
2002-03	24,197	47,083	108,228	2,818	140,879	323,205
2003-04	25,202	46,114	112,229	2,899	138,999	325,443
2004-05	26,365	47,617	116,977	2,950	137,056	330,965
2005-06	27,481	50,175	124,250	2,971	139,076	343,953
2006-07	29,037	50,419	130,577	3,188	140,228	353,449
2007-08	29,783	51,899	144,956	3,297	143,598	373,533
2008-09	29,231	51,688	149,640	3,149	136,376	370,084
2009-10	27,992	53,067	154,545	3,235	130,616	369,455
Total Change	6,434	10,641	65,129	711	693	83,608
Percent Change						
1998-99	3.60%	4.62%	5.75%	2.65%	2.88%	4.09%
1999-00	0.46%	3.36%	2.88%	3.05%	2.08%	2.41%
2000-01	1.61%	1.83%	3.10%	0.34%	1.08%	1.87%
2001-02	2.46%	0.42%	3.90%	6.23%	0.21%	1.65%
2002-03	3.59%	0.37%	3.85%	-0.98%	1.93%	2.43%
2003-04	4.15%	-2.06%	3.70%	2.87%	-1.33%	0.69%
2004-05	4.61%	3.26%	4.23%	1.76%	-1.40%	1.70%
2005-06	4.23%	5.37%	6.22%	0.71%	1.47%	3.92%
2006-07	5.66%	0.49%	5.09%	7.30%	0.83%	2.76%
2007-08	2.57%	2.94%	11.01%	3.42%	2.40%	5.68%
2008-09	-1.85%	-0.41%	3.23%	-4.49%	-5.03%	-0.92%
2009-10	-4.24%	2.67%	3.28%	2.73%	-4.22%	-0.17%
Total Change	29.85%	25.08%	72.84%	28.17%	0.53%	29.25%

Source: 1998 Projection Series, Demographic Research Unit, Department of Finance.

California reflects great diversity in its geography, climate, and its people. Display 3-7 shows how the four major ethnic groups are expected to change between 1993 and 2010. Hispanic-Latinos and Asian and Pacific Islanders will continue to be the fastest growing racial-ethnic groups. The Asian and Pacific Islander population is projected to increase by 4.0 percent by 2010 while the Hispanic-Latino group is expected to increase by 7.0 percent over the same period. Not shown on this display is the Native American population, which is expected to remain relatively stable at 0.6 percent of the state's population over the next three decades, before decreasing slightly to 0.5 percent by 2040.

DISPLAY 3-7 Ethnic Representation of California's Adult Population in 1993 Compared with 2010

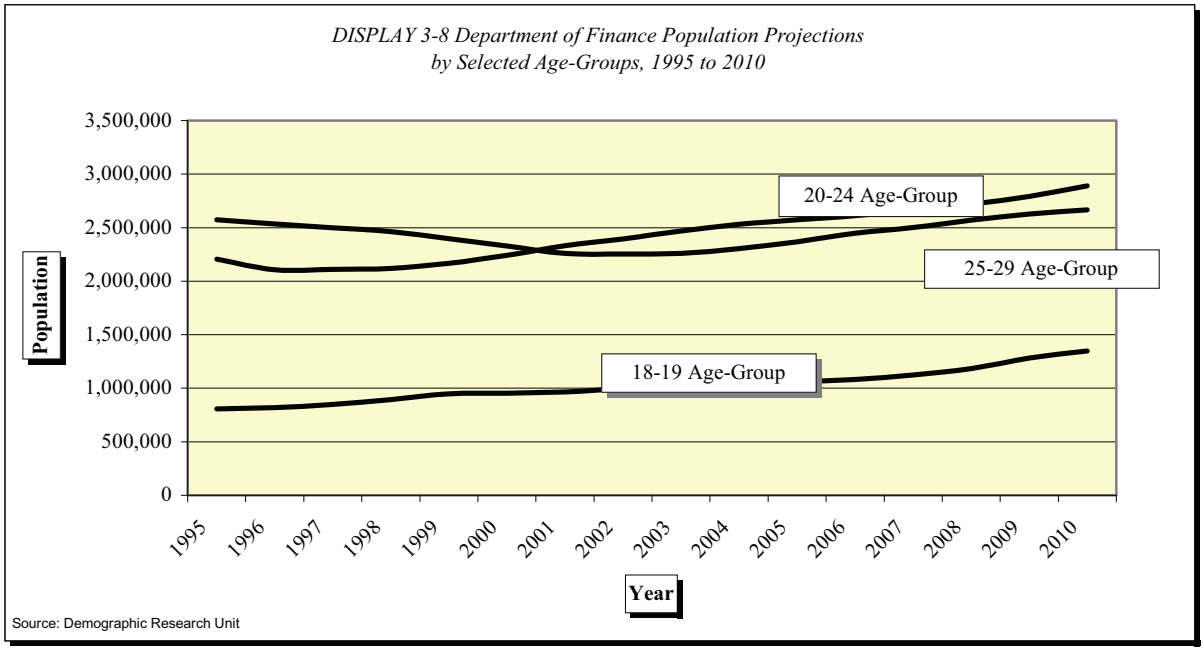


Source: Demographic Research Unit.

Looking further ahead, the Hispanic-Latino group will comprise nearly 48 percent of California's population by 2040. The African American proportion of the population is projected to remain relatively stable over the next 39 years at 7.0 percent before declining to about 5.5 percent by year 2040.

Demographic data also reveal important changes and trends expected in California's college-age populations. The Demographic Research Unit projects that there will be more than 24 million Californian's between the ages of 15 and 59 by the year 2010 (DOF, December 1998). Collectively, this group will comprise 61 percent of California's population. Within this group, the State's traditional college-going age-groups are projected to grow twice as rapidly as the State's general population. The 18-19 age-group is expected to increase at an average annual rate of 3.5 percent, or two and a half times the general population growth rate of 1.4 percent, whereas the 20-24 age group is expected to increase at an annual rate of 2.6 percent, or about twice the gen-

eral rate. The 25-29 age group is expected to grow at a much slower rate, increasing by 8.2 percent over the projection period while the 30-49 age group is projected to decline by 0.6 percent by 2010 (Display 3-8).



Projected enrollment demand at the University of California

The University of California is comprised of eight general campuses and one health science campus that served 173,570 total students in Fall 1998 through program offerings in nearly 300 academic disciplines and fields. A tenth university campus is being planned in the Central Valley at Merced that is expected to be open by Fall 2005[1]. The California Master Plan accords the University exclusive public responsibility (excluding joint programs) for doctoral and professional education in law, medicine, dentistry, and veterinary medicine. Traditionally, the University selects its freshmen entering class from among the top one-eighth of high school graduates statewide.

Recently, a growing number of educators and public officials have begun to express concerns over the disparities that currently exist in public instruction across the state's geographic regions and school districts that are presumed to affect college eligibility. For example, student performance on various standard achievement measures suggests that some schools are more successful than others in promoting student learning and academic success. Moreover, it has been observed that not all schools offer the same number of Advanced Placement courses, which may make it more difficult for some graduates of low-performing high schools to gain admission to the most selective UC campuses, such as Berkeley and UCLA. To help adjust for differences in the quality of instruction among school districts and geographic regions, UC has proposed to expand its eligibility pool to include students whose academic

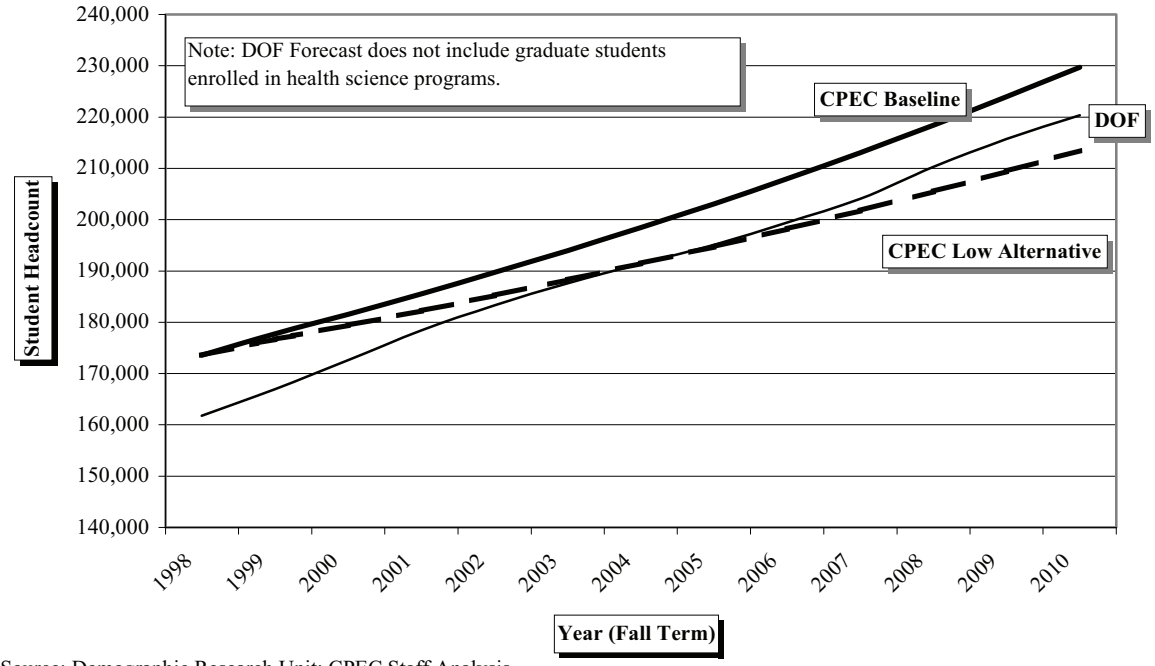
[1] The Governor's Proposed 2000-2001 State Budget calls for opening the Merced campus in 2004.

performance on the traditional college preparatory courses ranks them in the top 4.0 percent of the graduating seniors of their particular high school. This additional method of judging student success and achievement in relation to one's immediate environment and educational circumstances is expected to enhance the validity and fairness of the university's eligibility pool.

Based in part on recent increases in freshmen participation rates, anticipated improvements in the number of community college transfers, and expanded outreach support programs and services, the Commission's Baseline Forecast reveals that total student demand for UC will increase by 32.4 percent to 229,724 students by 2010 (Displays 3-9 and 3-10). Undergraduate demand is expected to increase by 38.2 percent over the next 12 years to 183,456, indicating a need for the University to accommodate 50,757 additional undergraduates by Fall 2010 (Display 3-10). The resulting annual growth rate of 2.74 percent is slightly lower than the change rate reflected in DRU's enrollment estimates for the University. If participation rates remain constant at Fall 1998 levels, as revealed by the Commission's Low Alternative Forecast, UC would need to prepare for a 26.0 percent increase in demand, or 34,494 additional undergraduate (Display 3-11).

The Commission's 1995 enrollment study projected that University undergraduate enrollments would reach 152,930 by Fall 2005. The Commission's latest undergraduate demand figures contained in this report are now about 4.0 percent higher. The current forecast indicates that undergraduate demand will top 159,510 by 2005, and then climb to 183,456 by 2010. These

DISPLAY 3-9 University of California Enrollment Demand, Fall 1998 to Fall 2010



Source: Demographic Research Unit; CPEC Staff Analysis.

DISPLAY 3-10 University of California Total Enrollment Demand, Fall 1998 to Fall 2010
1999 CPEC Baseline Projection Series (Undergraduate and Graduate)

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students[1]	Grand Total
1998	5,096	45,602	18,158	1,235	59,954	2,654	132,699	40,871	173,570
1999	5,230	47,453	19,034	1,266	60,412	2,721	136,117	41,624	177,741
2000	5,369	49,378	19,952	1,299	60,874	2,792	139,664	41,882	181,546
2001	5,510	51,382	20,915	1,332	61,339	2,866	143,344	42,170	185,514
2002	5,656	53,468	21,924	1,366	61,807	2,942	147,162	42,530	189,692
2003	5,805	55,637	22,982	1,400	62,280	3,021	151,126	42,845	193,971
2004	5,958	57,895	24,091	1,436	62,755	3,104	155,239	43,197	198,436
2005	6,115	60,245	25,253	1,473	63,235	3,189	159,510	43,575	203,085
2006	6,277	62,690	26,471	1,510	63,718	3,278	163,944	44,036	207,980
2007	6,442	65,234	27,749	1,549	64,205	3,370	168,548	44,517	213,065
2008	6,612	67,881	29,087	1,588	64,695	3,465	173,330	45,065	218,395
2009	6,787	70,636	30,491	1,628	65,189	3,565	178,296	45,656	223,952
2010	6,966	73,503	31,962	1,670	65,688	3,668	183,456	46,268	229,724

Percentage Changes

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students[1]	Total Percent Change
1999	2.64%	4.06%	4.82%	2.55%	0.76%	2.53%	2.58%	1.84%	2.40%
2000	2.64%	4.06%	4.82%	2.55%	0.76%	2.61%	2.61%	0.62%	2.14%
2001	2.64%	4.06%	4.82%	2.55%	0.76%	2.63%	2.63%	0.69%	2.19%
2002	2.64%	4.06%	4.82%	2.55%	0.76%	2.66%	2.66%	0.85%	2.25%
2003	2.64%	4.06%	4.82%	2.55%	0.76%	2.69%	2.69%	0.74%	2.26%
2004	2.64%	4.06%	4.82%	2.55%	0.76%	2.72%	2.72%	0.82%	2.30%
2005	2.64%	4.06%	4.82%	2.55%	0.76%	2.75%	2.75%	0.88%	2.34%
2006	2.64%	4.06%	4.82%	2.55%	0.76%	2.78%	2.78%	1.06%	2.41%
2007	2.64%	4.06%	4.82%	2.55%	0.76%	2.81%	2.81%	1.09%	2.45%
2008	2.64%	4.06%	4.82%	2.55%	0.76%	2.84%	2.84%	1.23%	2.50%
2009	2.64%	4.06%	4.82%	2.55%	0.76%	2.87%	2.87%	1.31%	2.54%
2010	2.64%	4.06%	4.82%	2.55%	0.76%	2.89%	2.89%	1.34%	2.58%
Total Change	**36.7%**	**61.2%**	**76.0%**	**35.2%**	**9.6%**	**38.2%**	**38.2%**	**13.2%**	**32.4%**

1. Graduate Enrollment Projections, developed by Department of Finance, have been adjusted each year by 12,207 to account for graduate students enrolled in U.C. health science programs.

Source: Demographic Research Unit; CPEC Staff Analysis.

revised demand estimates, however, are not quite as high as some university planners have envisioned. There are several reasons why the Commission expects undergraduate demand to increase less rapidly than some have suggested. First, the Commission has observed that, although the annual

DISPLAY 3-11 University of California Total Enrollment Demand, Fall 1998 to Fall 2010
1999 CPEC Low Alternative Projection Series (Undergraduate and Graduate)

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students[1]	Grand Total
1998	5,096	45,602	18,158	1,235	59,954	2,654	132,699	40,871	173,570
1999	5,166	47,133	18,837	1,243	60,002	2,702	135,082	41,624	176,706
2000	5,238	48,715	19,541	1,251	60,049	2,751	137,545	41,882	179,427
2001	5,310	50,351	20,272	1,258	60,097	2,802	140,090	42,170	182,260
2002	5,383	52,041	21,029	1,266	60,145	2,854	142,719	42,530	185,249
2003	5,458	53,788	21,816	1,274	60,193	2,909	145,437	42,845	188,282
2004	5,533	55,594	22,631	1,282	60,241	2,965	148,246	43,197	191,443
2005	5,610	57,460	23,477	1,290	60,289	3,023	151,149	43,575	194,724
2006	5,687	59,389	24,355	1,298	60,337	3,083	154,149	44,036	198,185
2007	5,766	61,383	25,265	1,306	60,385	3,145	157,250	44,517	201,767
2008	5,845	63,444	26,210	1,314	60,433	3,209	160,455	45,065	205,520
2009	5,926	65,574	27,190	1,323	60,481	3,275	163,768	45,656	209,424
2010	6,008	67,775	28,206	1,331	60,529	3,344	167,193	46,268	213,461

Percentage Changes

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students[1]	Total Percent Change
1999	1.38%	3.36%	3.74%	0.63%	0.08%	1.80%	1.80%	1.84%	1.81%
2000	1.38%	3.36%	3.74%	0.63%	0.08%	1.82%	1.82%	0.62%	1.54%
2001	1.38%	3.36%	3.74%	0.63%	0.08%	1.85%	1.85%	0.69%	1.58%
2002	1.38%	3.36%	3.74%	0.63%	0.08%	1.88%	1.88%	0.85%	1.64%
2003	1.38%	3.36%	3.74%	0.63%	0.08%	1.90%	1.90%	0.74%	1.64%
2004	1.38%	3.36%	3.74%	0.63%	0.08%	1.93%	1.93%	0.82%	1.68%
2005	1.38%	3.36%	3.74%	0.63%	0.08%	1.96%	1.96%	0.88%	1.71%
2006	1.38%	3.36%	3.74%	0.63%	0.08%	1.98%	1.98%	1.06%	1.78%
2007	1.38%	3.36%	3.74%	0.63%	0.08%	2.01%	2.01%	1.09%	1.81%
2008	1.38%	3.36%	3.74%	0.63%	0.08%	2.04%	2.04%	1.23%	1.86%
2009	1.38%	3.36%	3.74%	0.63%	0.08%	2.06%	2.06%	1.31%	1.90%
2010	1.38%	3.36%	3.74%	0.63%	0.08%	2.09%	2.09%	1.34%	1.93%
Total Change	**17.9%**	**48.6%**	**55.3%**	**7.8%**	**1.0%**	**26.0%**	**26.0%**	**13.2%**	**23.0%**

1. Graduate Enrollment Projections, developed by Department of Finance, have been adjusted each year by 12,207 to account for graduate students enrolled in U.C. health science programs.

Source: Demographic Research Unit; CPEC Staff Analysis.

number of first-time freshmen from California high schools to UC has increased steadily since 1993-94, the annual number of community college transfers to UC over the same period has declined steadily. Thus, the freshmen contribution to past undergraduate levels has been partially offset by de-

clining transfer demand. Although some UC planners anticipate the university serving 14,500 community college transfer students annually by year 2005, as is called for in the *Community College Transfer Agreement Compact*, the Commission expects this transfer enrollment target to be reached no sooner than 2007-08.

Second, although the University has achieved great success in attracting and enrolling increasing numbers of regularly admissible Latino and African American first-time freshmen since 1993, the improvements have been less dramatic because of declines in the number of special action admission slots awarded to these two ethnic groups. Historically, special action admissions has been extended primarily to promising high school seniors from socioeconomically disadvantaged backgrounds who have not met all of the UC eligibility requirements, but whose academic record none-the-less demonstrated their high suitability for college.

The number of domestic Latino and African American freshmen admitted between Fall 1993 and Fall 1998 through the regular admission process increased by 17.5 percent and 25.2 percent, respectively, while the corresponding special action enrollments over the same time period dropped by about 63 percent for each ethnic group (Display 3-12). Given the elimination of affirmative action consideration in the UC admission process, the Commission does not anticipate special action admission rates returning to historical levels. Accordingly, both the Commission's Baseline and Low Alternative Forecasts hold all special action admission rates constant throughout the projection period at the low 1998 observed levels. As a consequence, the overall public high school participation rate of African American and Latino students, discussed in the next session of this report, is not shown to return to peak averages of the late 1980s.

Third, the Commission's recent *Eligibility of California's 1996 High School Graduates for Admission to the State's Public Universities* (CPEC 1997), revealed no improvement in the UC eligibility of Latino and African American students, even though a higher proportion of all high school students are completing a college-preparatory course pattern. The estimated proportion of African American seniors eligible to attend the University fell from 5.1 percent in 1990 to 2.8 percent in 1996, while the estimated eligibility rate of Latino graduating seniors remained virtually unchanged at 3.9 percent (Display 3-13). Equally alarming is that the eligibility rate for these two racial groups continues to remain several percentage points below the California Master Plan target of 12.5 percent. Although University of California outreach programs and K-12 reform efforts are expected to improve African American and Latino eligibility rates in the long run, the Commission anticipates that most of the increase in the representation of these two groups in the immediate future will result from population growth alone.

DISPLAY 3-12 University of California Domestic First-Time Freshmen by Ethnic Group and Admission Status, Fall 1993 to Fall 1998

Racial Ethnic Category	Total	Regular	Special Action	Regular	Special Action
American Indian	**145**	127	18	87.59%	12.41%
African American	**888**	657	231	73.99%	26.01%
Latino	**3,018**	2,618	400	86.75%	13.25%
Asian	**7,626**	7,493	133	98.26%	1.74%
White/Other	**8,524**	8,363	161	98.11%	1.89%
Total 1993	**20,201**	19,258	943	95.33%	4.67%
American Indian	**215**	194	21	90.23%	9.77%
African American	**969**	783	186	80.80%	19.20%
Latino	**3,471**	3,060	411	88.16%	11.84%
Asian	**8,384**	8,233	151	98.20%	1.80%
White/Other	**8,400**	8,216	184	97.81%	2.19%
Total 1994	**21,439**	20,486	953	95.55%	4.45%
American Indian	**257**	238	19	92.61%	7.39%
African American	**978**	809	169	82.72%	17.28%
Latino	**3,556**	3,203	353	90.07%	9.93%
Asian	**8,220**	8,111	109	98.67%	1.33%
White/Other	**8,979**	8,810	169	98.12%	1.88%
Total 1995	**21,990**	21,171	819	96.28%	3.72%
American Indian	**248**	216	32	87.10%	12.90%
African American	**923**	713	210	77.25%	22.75%
Latino	**3,352**	3,004	348	89.62%	10.38%
Asian	**8,879**	8,725	154	98.27%	1.73%
White/Other	**9,761**	9,536	225	97.69%	2.31%
Total 1996	**23,163**	22,194	969	95.82%	4.18%
American Indian	**189**	181	8	95.77%	4.23%
African American	**946**	771	175	81.50%	18.50%
Latino	**3,234**	2,992	242	92.52%	7.48%
Asian	**9,089**	8,938	151	98.34%	1.66%
White/Other	**10,223**	10,029	194	98.10%	1.90%
Total 1997	**23,681**	22,911	770	96.75%	3.25%
American Indian	**195**	182	13	93.33%	6.67%
African American	**859**	772	87	89.87%	10.13%
Latino	**3,421**	3,278	143	95.82%	4.18%
Asian	**10,381**	10,236	145	98.60%	1.40%
White/Other	**10,017**	9,794	223	97.77%	2.23%
Total 1998	**24,873**	24,262	611	97.54%	2.46%

Source: University of California

DISPLAY 3-13 Estimated Percentage of Public High School Graduates Eligible for Freshman Admission to the University of California, by Racial/Ethnic Group, 1983, 1986, 1990, and 1996

Racial/Ethnic Group	1983	1986	1990	1996
All Graduates	7.00%	9.10%	12.30%	11.10%
African American Graduates	1.40%	2.30%	5.10%	2.80%
Asian Graduates	17.30%	24.90%	32.20%	30.00%
Latino Graduates	1.40%	3.10%	3.90%	3.80%
White Graduates	7.70%	10.10%	12.70%	12.70%

Source: California Postsecondary Education Commssion High School Eligibility Reports, 1983, 1986, 1990, and 1996.

University of California first-time freshmen forecast

The Commission tracks two types of freshmen participation rates. One rate, called the *public high school participation rate*, is used to show the proportion of public high school graduates who elect to enroll each year in a public college or university immediately following high school graduation. The *gross participation rate*, on the other hand, expresses all UC first-time freshmen (including out-of-state and foreign students) as a proportion of public high school graduates. Both rates are useful for enrollment planning purposes. The UC public participation rate dipped a few tenths of a percentage point during the early part of this decade, and then increased steadily between 1993 and 1996 (Display 3-14).

In estimating new freshmen enrollments, Commission staff disaggregated public participation rates by ethnic-racial group and admission basis code (i.e., regular admits and special action admits). This step was deemed necessary because students of various racial and socioeconomic backgrounds tend to have markedly different college-going rates. In addition, college persistence and graduation rates also vary by racial group. The Commission believes that as the future demography of the state becomes more unlike the past, it becomes crucial that enrollment demand models capture the key demographic and socioeconomic shifts expected to occur in the college-going population. Analysis of historical first-time freshmen rates reveals that Asian students are three times more likely than any other racial group to enroll in the University as freshmen. For example, between 1993 and 1998, the proportion of Asian public high school graduates who enrolled in UC increased from about 18.2 percent to 22.4 percent. During the same period, the overall freshman participation rate of regular UC admits averaged 7.5 percent. The Asian participation rate is tied to this ethnic group's extremely high UC eligibility rate of 30 percent, in contrast to the mean statewide eligibility estimate of 11.1 percent.

DISPLAY 3-14 University of California Public High School Participation Rates for First-Time Freshmen, 1990 to 1998 (Excludes Special Action Admissions)

Year (Actual)	High School Graduates	Public Freshmen	Public Participation Rate
1990	236,291	17,195	7.28%
1991	234,164	16,742	7.15%
1992	244,594	16,880	6.90%
1993	249,320	17,700	7.10%
1994	253,083	18,511	7.31%
1995	255,200	19,499	7.64%
1996	259,071	20,379	7.87%
1997	269,071	20,755	7.71%
1998	285,847	21,942	7.68%
Year (Projected)	**High School Graduates**	**Public Freshmen**	**Public Participation Rate**
1999	297,533	22,854	7.68%
2000	304,718	23,421	7.69%
2001	310,413	23,874	7.69%
2002	315,544	24,284	7.70%
2003	323,204	24,890	7.70%
2004	325,444	25,079	7.71%
2005	330,965	25,521	7.71%
2006	343,953	26,540	7.72%
2007	353,448	27,290	7.72%
2008	373,533	28,859	7.73%
2009	370,083	28,611	7.73%
2010	369,454	28,581	7.74%

Source: University of California; CPEC Staff Analysis.

The Commission believes that the current academic success of Asian students in exceeding rigorous UC eligibility standards will continue unabated into the next decade. It is assumed, however, that any additional increase in the Asian public participation rate above its present level is likely to be minimal. Accordingly, the public participation rate of regularly admissible Asian students is projected to increase by about 0.13 percentage points per year, reaching 24 percent in year 2010. The Commission anticipates public participation rates of the remaining racial categories to return to their peak averages observed during the last decade. These rates, which are lower than those recorded during the late 1980s, are presented in Display 3-15.

DISPLAY 3-15 Forecast Assumptions by Racial/Ethnic Group, University of California First-Time Freshmen

Population	Cognitive & Demographic Assumptions
African American Freshmen	The public participation rate of regularly admissible African American freshmen is forecast to return from 2.98 percent in 1998 to its 1995 level of 3.40 percent. African Americans admitted by special action are expected to add an additional 0.55 percentage points, resulting in a total public participation rate of 3.95 percent by 2010.
	Approximately 78 percent of entering African American freshmen are expected to have graduated from California public high schools, while about 19 percent are forecast to have originated from private high schools and 3 percent from out-of-state high schools.
	Approximately 64 percent of the African American regularly admissible freshmen and 48 percent of the special action admits are expected to persist to graduation within seven years.
Asian, Filipino, and Pacific Islander Freshmen	The public participation rate of regularly admissible Asian freshmen is forecast to increase from 22.4 percent to 24.0 percent by 2010. Asian students admitted by special action are expected to add an additional 0.27 percentage points, resulting in a total public participation rate of 24.27 percent by 2010.
	Approximately 87 percent of entering Asian freshmen are expected to have graduated from California public high schools, while about 9.3 percent are forecast to have originated from private high schools and 2.7 percent from out-of-state high schools.
	Approximately 79 percent of the Asian regularly admissible freshmen and 53 percent of the special action admits are expected to persist to graduation within seven years.
Latino Freshmen	The public participation rate of regularly admissible Latino freshmen is forecast to return from 3.1 percent in 1998 to its 1995 level of 3.38 percent. Latino students admitted by special action are expected to add an additional 0.18 percentage points, resulting in a total public participation rate of 3.28 percent by 2010.
	Approximately 79.2 percent of entering Latino freshmen are expected to have graduated from California public high schools, while about 18.7 percent are forecast to have originated from private high schools and 0.6 percent from out-of-state high schools.

DISPLAY 3-15 (Continued)

Population	Cognitive & Demographic Assumptions
Latino Freshmen (Continued)	Approximately 69.7 percent of the Latino regularly admissible freshmen and 51.2 percent of the special action admits are expected to persist to graduation within seven years.
Native American Freshmen	The public participation rate of regularly admissible Native Americans is forecast to return from 6.0 percent in 1998 to an average rate of 7.57 percent observed over the past five years. Native American students admitted by special action are expected to add an additional 0.41 percentage points, resulting in a total public participation rate of 7.98 percent by 2010.
	Approximately 77.7 percent of entering Native American freshmen are expected to have graduated from California public high schools, while about 15.7 percent are forecast to have originated from private high schools and 5.4 percent from out-of-state high schools.
	Approximately 69.5 percent of the Native American regularly admissible freshmen and 50 percent of the special action admits are expected to persist to graduation within seven years.
White/Other Freshmen	The public participation rate of regularly admissible White/Other freshmen is forecast to return from 6.24 percent to a historical average of 6.71 percent observed during the late 1980s. White/Other students admitted by special action are expected to add an additional 0.15 percentage points, resulting in a total public participation rate of 6.86 percent by 2010.
	Approximately 77.5 percent of entering White/Other freshmen are expected to have graduated from California public high schools, while about 15.2 percent are forecast to have originated from private high schools and 6.2 percent from out-of-state high schools.
	Approximately 78.6 percent of the White/Other regularly admissible freshmen and 58 percent of the special action admits are expected to persist to graduation within seven years.

When the ethnic-specific rates are combined, the overall public high school participation rate increases from 7.68 percent in 1998 to 7.74 percent in year 2010. The resulting Baseline estimate of UC freshmen to 2010 is presented in Display 3-16. As indicated, the total number of first-time freshmen is expected to increase by about 26.0 percent, or 7,334 additional students. Under the Commission's Low Alternative, the number of first-time freshmen is projected to increase by 17.3 percent, or 4,836 additional students (Display 3-17). This latter increase in freshmen demand is due entirely to the projected growth in the number of public high school graduates.

DISPLAY 3-16 University of California Anticipated First-Time Freshmen Enrollment Demand, Baseline Projection by Racial/Ethnic Group and Admission Status Academic Year 1999-00 to 2010-11

Year	African/ American	Asian	Latino	Native American	White/Other	Foreign Students	Total
Regular Admits							
1999-00	855	11,445	3,705	200	10,775	273	27,253
2000-01	869	11,901	3,841	211	11,072	282	28,176
2001-02	894	12,191	3,991	216	11,265	288	28,845
2002-03	927	12,316	4,179	234	11,363	293	29,312
2003-04	972	12,436	4,373	237	11,658	300	29,976
2004-05	1,025	12,254	4,569	249	11,578	300	29,975
2005-06	1,086	12,730	4,799	259	11,491	307	30,672
2006-07	1,146	13,494	5,137	266	11,737	321	32,101
2007-08	1,225	13,641	5,440	292	11,911	328	32,837
2008-09	1,272	14,127	6,086	308	12,278	344	34,415
2009-10	1,264	14,154	6,331	300	11,737	341	34,127
2010-11	1,225	14,619	6,589	315	11,315	344	34,407
Special Action Admits							
1999-00	137	136	193	12	218	0	696
2000-01	137	140	199	12	223	0	711
2001-02	140	143	205	12	225	0	725
2002-03	143	144	213	13	226	0	739
2003-04	148	144	221	13	230	0	756
2004-05	154	141	229	13	227	0	764
2005-06	161	146	239	14	224	0	784
2006-07	168	154	254	14	227	0	817
2007-08	178	154	266	15	229	0	842
2008-09	182	159	296	15	234	0	886
2009-10	179	158	305	14	223	0	879
2010-11	171	162	315	15	213	0	876

Source: CPEC Staff Analysis.

DISPLAY 3-17 University of California Anticipated First-Time Freshmen Enrollment Demand, Low Alternative Projection by Racial/Ethnic Group and Admission Status, Academic Year 1999-00 to 2010-11

Year	African/ American	Asian	Latino	Native American	White/Other	Foreign Students	Total
Regular Admits							
1999-00	855	11,445	3,705	200	10,775	273	27,253
2000-01	859	11,829	3,812	206	11,000	280	27,986
2001-02	872	12,045	3,930	207	11,118	285	28,457
2002-03	894	12,096	4,084	220	11,142	287	28,723
2003-04	926	12,141	4,241	218	11,357	292	29,175
2004-05	964	11,891	4,398	224	11,205	290	28,972
2005-06	1,009	12,279	4,584	228	11,048	294	29,442
2006-07	1,052	12,938	4,869	229	11,211	306	30,605
2007-08	1,111	13,001	5,116	246	11,304	311	31,089
2008-09	1,140	13,383	5,680	255	11,576	324	32,358
2009-10	1,119	13,328	5,863	243	10,994	319	31,866
2010-11	1,071	13,684	6,056	250	10,529	319	31,909
Special Action Admits							
1999-00	137	136	193	12	218	0	696
2000-01	137	140	199	12	223	0	711
2001-02	140	143	205	12	225	0	725
2002-03	143	144	213	13	226	0	739
2003-04	148	144	221	13	230	0	756
2004-05	154	141	229	13	227	0	764
2005-06	161	146	239	14	224	0	784
2006-07	168	154	254	14	227	0	817
2007-08	178	154	266	15	229	0	842
2008-09	182	159	296	15	234	0	886
2009-10	179	158	305	14	223	0	879
2010-11	171	162	315	15	213	0	876

Source: CPEC Staff Analysis.

New undergraduate transfers to the University of California

Annual undergraduate transfer demand to the University of California is expected to increase from 11,361 transfers in 1998-99 to 18,333 by year 2010, representing a 61.4 percent change in transfer demand (Display 3-18). Community college transfers are expected to account for about 89.3 percent of the entering transfer population, whereas the remaining 10.7 percent of the transfer total is expected to include students from other California colleges and universities (4.2 percent), students from out-of-state institutions (5.6 percent), and students from foreign countries (0.9 percent). Approximately 81 percent of annual undergraduate transfers are expected to begin matriculation in the fall term and the remaining in the winter and spring terms. Under the Commission's Low Alternative Forecast, total undergraduate transfers are expected to increase by 36.4 percent over the projection period (Display 3-19).

DISPLAY 3-18 First-Time Transfer Students to the University of California Academic Year 1998-99 to 2010-11 (CPEC Baseline Projection)

Year	Community College Transfers					CCC Subtotal	Other Transfers			Total Transfers
	African/ American	Asian	Latino	Native American	White/ Other		Other Calif. Inst.	Out of State	Foreign	
1998-99	266	3,276	1,519	112	4,977	10,150	475	634	102	11,361
1999-00	280	3,433	1,595	116	5,133	10,558	469	626	101	11,753
2000-01	296	3,597	1,676	119	5,295	10,982	488	651	105	12,226
2001-02	311	3,769	1,760	123	5,461	11,425	507	678	109	12,719
2002-03	328	3,949	1,849	127	5,633	11,886	528	705	113	13,233
2003-04	346	4,138	1,942	131	5,809	12,367	549	733	118	13,768
2004-05	365	4,336	2,040	136	5,992	12,868	572	763	123	14,326
2005-06	384	4,544	2,142	140	6,180	13,391	595	794	128	14,908
2006-07	405	4,761	2,250	145	6,374	13,936	619	826	133	15,514
2007-08	427	4,989	2,364	149	6,575	14,504	644	860	138	16,146
2008-09	450	5,228	2,483	154	6,781	15,096	671	895	144	16,806
2009-10	474	5,478	2,608	159	6,994	15,713	698	932	150	17,493
2010-11	500	5,740	2,739	166	7,323	16,468	732	977	157	18,333

Source: CPEC Staff Analysis

DISPLAY 3-19 First-Time Transfer Students to the University of California Academic Year 1998-99 to 2010-11 (CPEC Low Alternative Projection)

Year	Community College Transfers					CCC Subtotal	Other Transfers			Total Transfers
	African/ American	Asian	Latino	Native American	White/ Other		Other Calif. Inst.	Out of State	Foreign	
1998-99	266	3,276	1,519	112	4,977	10,150	475	634	102	11,361
1999-00	273	3,385	1,554	112	5,091	10,415	463	618	99	11,594
2000-01	280	3,498	1,589	113	5,207	10,686	475	634	102	11,897
2001-02	287	3,614	1,626	113	5,326	10,965	487	650	105	12,207
2002-03	294	3,735	1,663	114	5,447	11,252	500	667	107	12,526
2003-04	301	3,859	1,701	114	5,572	11,546	513	685	110	12,854
2004-05	309	3,987	1,740	114	5,699	11,849	526	703	113	13,191
2005-06	316	4,120	1,780	115	5,829	12,160	540	721	116	13,537
2006-07	324	4,257	1,821	115	5,962	12,479	554	740	119	13,892
2007-08	332	4,399	1,862	116	6,098	12,807	569	760	122	14,258
2008-09	341	4,545	1,905	116	6,237	13,144	584	780	125	14,633
2009-10	349	4,697	1,948	117	6,379	13,490	599	800	129	15,018
2010-11	358	4,853	1,993	117	6,525	13,846	615	821	132	15,414

Source: CPEC Staff Analysis

The California Master Plan for Higher Education established community college transfer as an important and significant priority for the University of California and the California State University. The transfer process embraces the concept of a second chance by extending baccalaureate instruction to many Californians who may not have qualified for admission to the State's

four-year institutions based on their high school performance. In deriving its annual transfer projections, the Commission considered the University's *Community College Transfer Agreement Compact*, which expressed the University's intent to enroll approximately 14,500 community college transfers annually by year 2005. This desired target represents a 33 percent increase over the number of transfers who enrolled in UC during the 1995-96 academic year. To support its transfer goal, the University committed to a number of noteworthy initiatives: (1) improving course articulation procedures; (2) increasing participation at community college transfer centers; (3) creating more part-time options at the University; (4) intensifying outreach activities; and (5) expanding evaluation procedures to measure and monitor transfer success.

Despite these very promising initiatives, annual community college transfers to the University have declined by over 7.0 percent since 1993. Based on observed historical transfer patterns exhibited by students of various ethnic and age groups, it seems unlikely that the University will reach its transfer target until 2007-08. The Commission's Baseline Forecast is based on community college transfer rates returning at a moderate pace, for most age-groups, to peak averages observed between 1990 and 1995. Display 3-20 contains the specific transfer rates used to generate the transfer forecast. That display also includes the most recent UC graduation rates of community college students, which are assumed to remain constant throughout the projection period. New transfer students are expected to account for between 7.0 and 8.0 percent of the University's undergraduate enrollment (Display 3-21).

DISPLAY 3-20 Community College Transfers to the University of California, and Their Expected Graduation Rate (Transfer Rate Expressed per 1,000 Students by Age and Racial/Ethnnic Group)

Racial/Ethnic Group	Year	Age-Group					Graduation Rate
		18 to 19	20 to 24	25 to 29	30 to 49	50 to 59	
African-Amer.	1998	0.9	4.3	2.8	1.4	0.1	
	2010	1.5	5.3	3.8	1.4	0.3	83.3
Asian	1998	4.9	29.7	11.0	2.8	0.2	
	2010	7.9	31.8	12.9	2.9	0.2	83.3
Latino	1998	0.7	6.7	3.8	1.1	0.4	
	2010	1.1	8.0	4.5	1.5	0.4	83.3
Native Amer.	1998	2.3	9.1	7.8	2.3	0.8	
	2010	3.0	15.3	8.4	3.2	1.3	83.3
White	1998	2.2	17.0	6.6	2.1	0.2	
	2010	2.8	18.7	7.5	2.4	0.3	83.3

Source: University of California; CPEC Staff Analysis.

DISPLAY 3-21 Anticipated Undergraduate Enrollment at the University of California by Enrollment Category Between Fall 1999 and Fall 2010, Using the Commission's Baseline Projection[1]

Fall	First-time Freshmen		Transfer Students		Continuing Students		Total Under-graduates
	Number	Percent	Number	Percent	Number	Percent	
1999	27,390	20%	9,403	7%	99,324	73%	136,117
2000	28,309	20%	9,781	7%	101,574	73%	139,664
2001	28,979	20%	10,175	7%	104,190	73%	143,344
2002	29,450	20%	10,586	7%	107,126	73%	147,162
2003	30,117	20%	11,014	7%	109,995	73%	151,126
2004	30,124	19%	11,461	7%	113,654	73%	155,239
2005	30,827	19%	11,926	7%	116,757	73%	159,510
2006	32,260	20%	12,411	8%	119,273	73%	163,944
2007	33,005	20%	12,917	8%	122,626	73%	168,548
2008	34,595	20%	13,444	8%	125,291	72%	173,330
2009	34,306	19%	13,994	8%	129,996	73%	178,296
2010	34,577	19%	14,667	8%	134,212	73%	183,456

1. This display includes first-time freshmen and transfer students entering only in the fall terms.

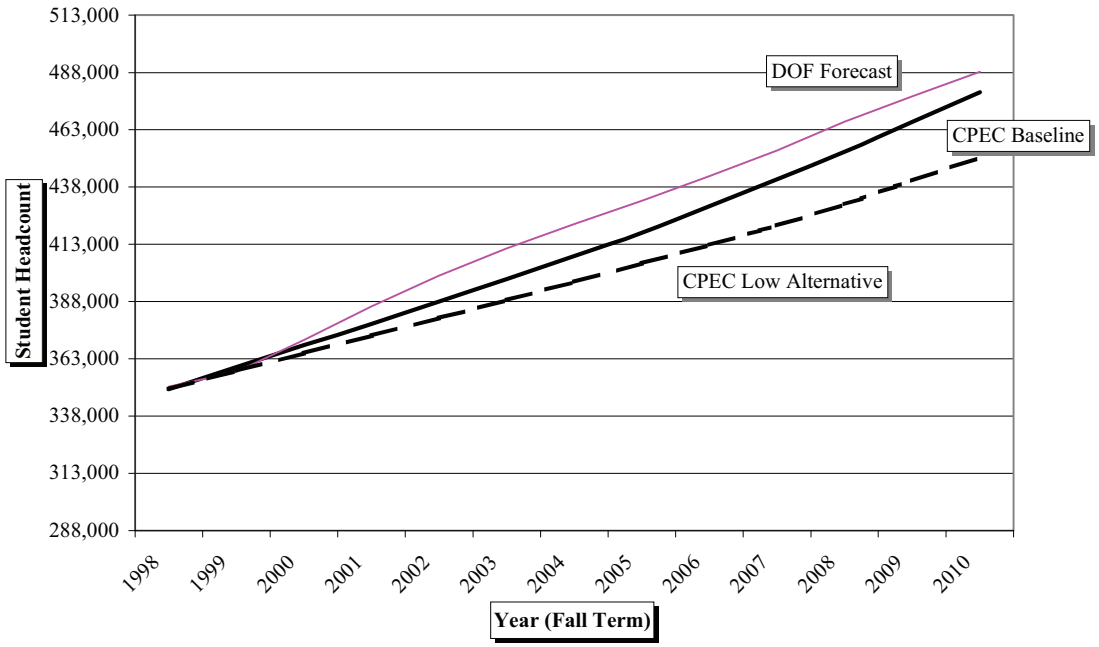
Source: CPEC Staff Analysis.

Projected enrollment demand at the California State University

The California State University is the largest four-year public postsecondary system in the nation. The State University consists of 22 regional campuses that served 349,804 total students in Fall 1998 through program offerings in over 200 academic disciplines and fields. Just prior to the Commission's 1995 enrollment study, the CSU had been hard hit by the recession of the early 1990s that coincided with a dramatic loss of 50,000 students and several consecutive years of declines in first-time freshmen enrollments. The Commission had predicted in its previous enrollment study that the State University would grow again beginning in 1996 and reach 410,996 total students by Fall 2005. Although the projections have proven to be quite reliable, students are returning to the CSU in numbers slightly greater than anticipated. The system's Fall 1998 undergraduate enrollment of 278,597 students was about 1.7 percent higher than the Commissions previous Fall estimate.

The Commission's present Baseline Forecast reveals that total CSU student demand is expected to increase by 37 percent to 479,485 students by 2010 (Display 3-22). The Commission expects undergraduate demand for the State University to increase by about 42 percent over the next 12 years to 395,544 students, indicating a need for the CSU to accommodate 116,947 additional undergraduates by Fall 2010 (Display 3-23). The resulting annual growth rate of 2.96 percent is slightly lower than the change rate reflected in

DISPLAY 3-22 California State University
Total Student Demand Fall 1998 to Fall 2010



Source: Demographic Research Unit; CPEC Staff Analysis.

DRU's enrollment estimates for the State University. If participation rates remain constant at Fall 1998 levels, as revealed by the Commission's Low Alternative Forecast (Display 3-24), the CSU would need to prepare for a 32 percent increase in demand, or 88,383 additional undergraduates. Approximately 72 percent of the increase in undergraduate demand is expected to result from population growth and the remainder due to improvements in freshmen and transfer participation rates. Factors presumed to be associated with improvements in undergraduate participation include: (1) a favorable labor market outlook; (2) high demand for new K-12 teachers; (3) enhanced distributed learning opportunities; and (4) the CSU *Cornerstones* Strategic Planning Initiative.

CSU first-time freshmen forecast

Since 1994, freshmen enrollments of regularly admissible high school graduates have been on a dramatic upswing. Between 1994 and 1998, the total annual enrollment of freshmen who had met all CSU admission requirements increased from 18,472 to 29,024, representing a 57-percent change. This brisk increase in freshman participation was even more substantial than the Commission had anticipated in 1995. The corresponding annual public participation rate of regular admits, which accounts typically for about 84 percent of total freshmen enrollments, jumped two percentage points, from 6.5 percent in 1993 to 8.5 percent in 1998. The most impressive gains were recorded by the most underrepresented ethnic-racial groups. For example, the annual enrollment of regularly admissible African American freshmen nearly doubled from 825 in Fall 1993 to 1,473 in Fall 1998, while the enrollment of Latino regular admits increased by 40.5 percent, from 4,143 in Fall 1993 to 5,819 in Fall 1998.

DISPLAY 3-23 California State University Total Enrollment Demand, Fall 1998 to Fall 2010
1999 CPEC Baseline Projection Series (Undergraduate and Graduate)

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students)					Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students	Grand Total
	African/ American	Asian	Latino	Native American	White/ Other				
1998	19,753	60,587	63,109	3,219	119,042	12,887	278,597	71,207	349,804
1999	20,184	62,868	65,303	3,279	121,619	13,253	286,504	72,897	359,401
2000	20,624	65,235	67,572	3,339	124,251	13,630	294,651	74,268	368,919
2001	21,074	67,690	69,921	3,401	126,940	14,018	303,044	75,254	378,298
2002	21,533	70,239	72,351	3,464	129,688	14,418	311,693	76,346	388,039
2003	22,003	72,883	74,866	3,528	132,495	14,830	320,605	77,168	397,773
2004	22,483	75,627	77,468	3,593	135,362	15,255	329,788	77,962	407,750
2005	22,973	78,474	80,161	3,660	138,292	15,693	339,252	78,766	418,018
2006	23,433	81,428	84,074	3,723	141,042	16,184	349,884	79,684	429,568
2007	23,893	84,493	88,083	3,786	143,792	16,686	360,734	80,669	441,403
2008	24,353	87,674	92,059	3,849	146,542	17,192	371,669	81,719	453,388
2009	24,813	90,975	96,870	3,912	149,292	17,744	383,606	82,827	466,433
2010	25,278	94,400	101,555	3,975	152,040	18,297	395,544	83,941	479,485

Percentage Changes

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students)					Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students[1]	Total Percent Change
	African/ American	Asian	Latino	Native American	White/ Other				
1999	2.18%	3.76%	3.48%	1.85%	2.16%	2.84%	2.84%	2.37%	2.74%
2000	2.18%	3.76%	3.48%	1.85%	2.16%	2.84%	2.84%	1.88%	2.65%
2001	2.18%	3.76%	3.48%	1.85%	2.16%	2.85%	2.85%	1.33%	2.54%
2002	2.18%	3.76%	3.48%	1.85%	2.16%	2.85%	2.85%	1.45%	2.57%
2003	2.18%	3.76%	3.48%	1.85%	2.16%	2.86%	2.86%	1.08%	2.51%
2004	2.18%	3.76%	3.48%	1.85%	2.16%	2.86%	2.86%	1.03%	2.51%
2005	2.18%	3.76%	3.48%	1.85%	2.16%	2.87%	2.87%	1.03%	2.52%
2006	2.00%	3.76%	4.88%	1.72%	1.99%	3.13%	3.13%	1.17%	2.76%
2007	1.96%	3.76%	4.77%	1.69%	1.95%	3.10%	3.10%	1.24%	2.75%
2008	1.93%	3.76%	4.51%	1.66%	1.91%	3.03%	3.03%	1.30%	2.72%
2009	1.89%	3.76%	5.23%	1.64%	1.88%	3.21%	3.21%	1.36%	2.88%
2010	1.87%	3.76%	4.84%	1.61%	1.84%	3.11%	3.11%	1.34%	2.80%
Total Change	**28.0%**	**55.8%**	**60.9%**	**23.5%**	**27.7%**	**42.0%**	**42.0%**	**17.9%**	**37.1%**

Source: Demographic Research Unit; CPEC Staff Analysis.

DISPLAY 3-24 California State University Total Enrollment Demand, Fall 1998 to Fall 2010
1999 CPEC Low Alternative Projection Series (Undergraduate and Graduate)

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students	Grand Total
1998	19,753	60,587	63,109	3,219	119,042	12,887	278,597	71,207	349,804
1999	19,943	62,532	65,111	3,239	120,836	13,174	284,835	72,897	357,732
2000	20,135	64,540	67,177	3,259	122,657	13,470	291,237	74,268	365,505
2001	20,328	66,612	69,308	3,279	124,505	13,774	297,807	75,254	373,061
2002	20,524	68,751	71,507	3,300	126,381	14,085	304,548	76,346	380,894
2003	20,721	70,958	73,776	3,320	128,286	14,405	311,466	77,168	388,634
2004	20,920	73,237	76,116	3,341	130,219	14,734	318,566	77,962	396,528
2005	21,122	75,588	78,531	3,361	132,181	15,071	325,854	78,766	404,620
2006	21,325	78,015	81,022	3,382	133,910	15,404	333,058	79,684	412,742
2007	21,530	80,520	83,593	3,403	135,663	15,746	340,455	80,669	421,124
2008	21,737	83,105	87,223	3,424	137,099	16,128	348,716	81,719	430,435
2009	21,946	85,773	91,796	3,446	138,456	16,556	357,973	82,827	440,800
2010	22,157	88,527	96,374	3,467	139,481	16,973	366,979	83,941	450,920

Percentage Changes

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Transi-tory/ Nonres. Alien	Total Under-graduate	Graduate Students[1]	Total Percent Change
1999	0.96%	3.21%	3.17%	0.62%	1.51%	2.22%	2.24%	2.37%	2.27%
2000	0.96%	3.21%	3.17%	0.62%	1.51%	2.25%	2.25%	1.88%	2.17%
2001	0.96%	3.21%	3.17%	0.62%	1.51%	2.26%	2.26%	1.33%	2.07%
2002	0.96%	3.21%	3.17%	0.62%	1.51%	2.26%	2.26%	1.45%	2.10%
2003	0.96%	3.21%	3.17%	0.62%	1.51%	2.27%	2.27%	1.08%	2.03%
2004	0.96%	3.21%	3.17%	0.62%	1.51%	2.28%	2.28%	1.03%	2.03%
2005	0.96%	3.21%	3.17%	0.62%	1.51%	2.29%	2.29%	1.03%	2.04%
2006	0.96%	3.21%	3.17%	0.62%	1.31%	2.21%	2.21%	1.17%	2.01%
2007	0.96%	3.21%	3.17%	0.62%	1.31%	2.22%	2.22%	1.24%	2.03%
2008	0.96%	3.21%	4.34%	0.62%	1.06%	2.43%	2.43%	1.30%	2.21%
2009	0.96%	3.21%	5.24%	0.62%	0.99%	2.65%	2.65%	1.36%	2.41%
2010	0.96%	3.21%	4.99%	0.62%	0.74%	2.52%	2.52%	1.34%	2.30%
Total Change	**12.2%**	**46.1%**	**52.7%**	**7.7%**	**17.2%**	**31.7%**	**31.7%**	**17.9%**	**28.9%**

Source: Demographic Research Unit; CPEC Staff Analysis.

Most of the overall improvement in CSU freshman participation occurred during the first three years of California's recent economic recovery (1994 to 1996). In contrast, freshman participation increases have been more moderate during that time. Accordingly, the Commission expects CSU freshman participation rates to improve gradually during this decade. Because White/Other high school graduates are expected to decline by about 7.0 percent towards the end of the projection period, and because this group historically has had a high participation rate, the net overall improvement in the CSU participation rate is expected to be less substantial. The projected public high school participation rates for each racial/ethnic group, and the current graduation rates for each racial/ethnic group by admission category (regular and special-action admit), which are quite low for some student groups, are in Display 3-25. Freshman eligibility rates are also low for some student racial-ethnic groups (Display 3-26).

Based on the projected participation rates, the total annual number of first-time freshmen to the CSU is expected to increase from 34,715 in 1999 to 45,431 by year 2010, a 30.9 percent increase and 10,716 additional students (Display 3-27). The numerical increase in freshmen demand translates to a corresponding change in the public high school participation from 8.5 to 9.1 by 2010. About 70 percent of the expected change in freshman participation is due to projected changes in the size of the State's public high school graduating class. Under the Commission's Low Alternative, freshmen demand is projected to increase by 22.7 percent, or 7,835 additional students (Display 3-28). Given the elimination of affirmative action in the admissions process, and the CSU's concern regarding the high proportion of new freshmen needing English or mathematics remediation, the Commission does not anticipate special action admission rates returning to historical averages. In Fall 1993, approximately 17.5 percent of entering CSU freshmen were admitted by exception (special action) to the full admission requirements, whereas in Fall 1998 that proportion had dropped to 11.4 percent. Both the Commission's Baseline and Low Alternative Forecasts hold special-action admission rates constant at the observed 1998 levels for all ethnic-racial groups.

New undergraduate transfers to the California State University

Annual undergraduate transfer demand to the California State University is expected to increase from 50,068 transfers in 1998 to 75,830 transfers by year 2010, representing a 51.5 percent increase (Display 3-29). Community college transfers are expected to account for about 86.3 percent of the entering transfer population. The remaining 13.7 percent is expected to include students from other California colleges and universities (4.4 percent), students from out-of-state institutions (7.5 percent), and students from foreign countries (1.8 percent). Approximately 67 percent of annual undergraduate transfers are expected to begin matriculation in the fall term, with the remainder entering in the winter and spring terms. Under the Commission's Low Alternative projection, transfer demand would reach 70,516 by 2010 (Display 3-30). Because new undergraduate transfers are projected to increase at a slightly higher rate than new freshmen demand, the transfer population, as a percentage of all new undergraduate students, should increase from 59 percent to 62.5 percent by year 2010 (Display 3-31). In

3-25 Forecast Assumptions by Racial/Ethnic Group, California State University First-Time Freshmen

Population	Cognitive & Demographic Assumptions
African American Freshmen	The public participation rate of regularly admissible African American freshmen is forecast to increase from 7.1 percent in 1998 to 7.9 percent by 2010. African Americans admitted by special action are expected to add an additional 2.9 percentage points, resulting in a total public participation rate of 10.8 percent by 2010. Approximately 86 percent of entering African American freshmen are expected to have graduated from California public high schools, while about 11.3 percent are forecast to have originated from private high schools and 2.7 percent from out-of-state high schools. Approximately 43.8 percent of the African American regularly admissible freshmen and 27.1 percent of the special action admits are expected to persist to graduation.
Asian, Filipino, and Pacific Islander Freshmen	The public participation rate of regularly admissible Asian freshmen is forecast to increase from 14.8 percent to 16.3 percent by 2010. Asian students admitted by special action are expected to add an additional 1.3 percentage points, resulting in a total public participation rate of 17.6 percent by 2010. Approximately 88.2 percent of entering Asian freshmen are expected to have graduated from California public high schools, while about 10.4 percent are forecast to have originated from private high schools and 1.4 percent from out-of-state high schools. Approximately 65.9 percent of the Asian regularly admissible freshmen and 43 percent of the special action admits are expected to persist to graduation.
Latino Freshmen	The public participation rate of regularly admissible Latino freshmen is forecast to increase from 6.6 percent to 8.3 percent by 2010. Latino students admitted by special action are expected to add an additional 1.5 percentage points, resulting in a total public participation rate of 9.8 percent by 2010. Approximately 85.4 percent of entering Latino freshmen are expected to have graduated from California public high schools, while about 13.8 percent are forecast to have originated from private high schools and 0.8 percent from out-of-state high schools.

DISPLAY 3-25 (Continued)

Population	Cognitive & Demographic Assumptions
Latino Freshmen (Continued)	Approximately 54.9 percent of the Latino regularly admissible freshmen and 33.3 percent of the special action admits are expected to persist to graduation.
Native American Freshmen	The public participation rate of regularly admissible Native Americans is forecast to increase from 8.4 percent in 1998 to 10.5 percent by 2010. Native American students admitted by special action are expected to add an additional 1.6 percentage points, resulting in a total public participation rate of 12.1 percent by 2010.
	Approximately 86.7 percent of entering Native American freshmen are expected to have graduated from California public high schools, while about 10.4 percent are forecast to have originated from private high schools and 2.9 percent from out-of-state high schools.
	Approximately 53.2 percent of the Native American regularly admissible freshmen and 31.7 percent of the special action admits are expected to persist to graduation.
White/Other Freshmen	The public participation rate of regularly admissible White/Other freshmen is forecast to increase from 8.1 percent in Fall 1998 to 8.6 percent by 2010. White/Other students admitted by special action are expected to add an additional 0.43 percentage points, resulting in a total public participation rate of 9.0 percent by 2010.
	Approximately 82.3 percent of entering White/Other freshmen are expected to have graduated from California public high schools, while about 13.7 percent are forecast to have originated from private high schools and 4.0 percent from out-of-state high schools.
	Approximately 60.9 percent of the White/Other regularly admissible freshmen and 41.8 percent of the special action admits are expected to persist to graduation.

DISPLAY 3-26 Estimated Percentage of Public High School Graduates Eligible for Freshman Admission to the California State University, by Racial/Ethnic Group, 1983, 1986, 1990, and 1996

Racial/Ethnic Group	1983	1986	1990	1996
All Graduates	29.60%	27.50%	34.60%	29.60%
African American Graduates	9.10%	10.80%	18.63%	13.20%
Asian Graduates	49.00%	50.00%	61.50%	54.40%
Latino Graduates	15.30%	13.30%	17.30%	13.40%
White Graduates	33.50%	31.60%	38.20%	36.30%

Source: California Postsecondary Education Commssion High School Eligibility Reports, 1983, 1986, 1990, and 1996.

deriving its annual transfer projections, the Commission considered the State University's community college transfer goals expressed through year 2005, but as noted below, does not find them reasonable.

The State University regards the transfer function as an important facet of providing educational opportunities, leading to the baccalaureate degree, to the state's diverse population of learners – many of whom are working adults with established families. Through improved transfer articulation agreements, and expanded advising and guidance efforts, the CSU anticipates enrolling approximately 64,000 community college transfer students annually by 2005. The Commission's analysis reveals that this transfer target may not be reached until 2010 – five years later than the CSU anticipates. One of the Commission's major consideration in deriving transfer demand estimates was the recent decline in the number of community college transfers to the CSU, despite enhanced transfer reform efforts undertaken by both the State University and the University of California.

In spite of the State University's annual transfer targets, the number of community college transfers to that system actually declined by nearly 10 percent between 1995 and 1998. Given this decline, and the observed historical transfer patterns exhibited by students of various racial/ethnic and age groups, it does not seem plausible that the CSU will be able to attract an additional 20,791 annual community college transfers above the Fall 1998 transfer enrollment base of 43,209, the number required to meet its 2005 target. For most age groups, the Commission expects transfer rates to return at a moderate pace to the peak averages observed between 1994 and 1996. These transfer rates, along with current CSU transfer graduation rates, are presented in Display 3-32.

DISPLAY 3-27 California State University Anticipated First-Time Freshmen Enrollment Demand, Baseline Projection by Racial/Ethnic Group and Admission Status Academic Year 1999-00 to 2010-11

Year	African/ American	Asian	Latino	Native American	White/Other	Foreign Students	Total
Regular Admits							
1999-00	1,886	7,451	7,367	261	13,282	596	30,843
2000-01	1,938	7,774	7,665	278	13,840	621	32,116
2001-02	2,013	7,990	7,989	288	14,274	642	33,196
2002-03	2,108	8,098	8,392	316	14,517	659	34,090
2003-04	2,230	8,202	8,809	323	14,979	677	35,220
2004-05	2,323	8,107	9,233	342	14,600	682	35,287
2005-06	2,430	8,446	9,725	358	14,395	697	36,051
2006-07	2,533	8,979	10,333	361	14,608	726	37,540
2007-08	2,676	9,103	10,859	387	14,729	745	38,499
2008-09	2,745	9,453	12,055	401	15,083	784	40,521
2009-10	2,694	9,496	12,445	383	14,324	777	40,119
2010-11	2,580	9,833	12,853	393	13,719	778	40,156
Special Action Admits							
1999-00	766	656	1,708	47	695	0	3,872
2000-01	769	679	1,757	49	710	0	3,964
2001-02	782	691	1,812	49	718	0	4,052
2002-03	801	694	1,882	52	719	0	4,148
2003-04	830	696	1,955	51	733	0	4,265
2004-05	864	682	2,027	53	723	0	4,349
2005-06	904	704	2,113	54	713	0	4,488
2006-07	942	742	2,244	54	724	0	4,706
2007-08	996	746	2,358	58	730	0	4,888
2008-09	1,021	768	2,618	60	747	0	5,214
2009-10	1,002	764	2,703	57	710	0	5,236
2010-11	960	785	2,791	59	680	0	5,275

Source: CPEC Staff Analysis.

DISPLAY 3-28 California State University Anticipated First-Time Freshmen Enrollment Demand, Low Alternative Projection by Racial/Ethnic Group and Admission Status Academic Year 1999-00 to 2010-11

Year	African/ American	Asian	Latino	Native American	White/Other	Foreign Students	Total
Regular Admits							
1999-00	1,843	7,437	7,288	252	13,214	592	30,626
2000-01	1,852	7,687	7,498	259	13,489	607	31,392
2001-02	1,881	7,827	7,731	260	13,635	618	31,952
2002-03	1,927	7,860	8,032	277	13,663	626	32,385
2003-04	1,997	7,889	8,342	274	13,927	639	33,068
2004-05	2,080	7,727	8,650	282	13,741	640	33,120
2005-06	2,176	7,979	9,016	287	13,549	651	33,658
2006-07	2,268	8,407	9,577	289	13,748	676	34,965
2007-08	2,396	8,448	10,064	310	13,862	692	35,772
2008-09	2,458	8,696	11,172	320	14,195	727	37,568
2009-10	2,412	8,660	11,533	306	13,482	719	37,112
2010-11	2,310	8,892	11,912	314	12,912	718	37,058
Special Action Admits							
1999-00	766	656	1,708	47	695	0	3,872
2000-01	769	679	1,757	49	710	0	3,964
2001-02	782	691	1,812	49	718	0	4,052
2002-03	801	694	1,882	52	719	0	4,148
2003-04	830	696	1,955	51	733	0	4,265
2004-05	864	682	2,027	53	723	0	4,349
2005-06	904	704	2,113	54	713	0	4,488
2006-07	942	742	2,244	54	724	0	4,706
2007-08	996	746	2,358	58	730	0	4,888
2008-09	1,021	768	2,618	60	747	0	5,214
2009-10	1,002	764	2,703	57	710	0	5,236
2010-11	960	785	2,791	59	680	0	5,275

Source: CPEC Staff Analysis.

DISPLAY 3-29 First-Time Transfer Students to the California State University
Academic Year 1998-99 to 2010-11 (CPEC Baseline Projection)

	Community College Transfers						Other Transfers			
Year	African/ American	Asian	Latino	Native American	White/ Other	CCC Subtotal	Other Calif. Inst.	Out of State	Foreign	Total Transfers
1998-99	2,430	9,561	8,767	527	21,924	43,209	2,203	3,755	901	50,068
1999-00	2,553	10,013	9,283	552	22,661	45,062	2,297	3,916	940	52,216
2000-01	2,677	10,464	9,799	576	23,398	46,914	2,392	4,077	979	54,362
2001-02	2,800	10,916	10,315	601	24,135	48,767	2,486	4,238	1,017	56,509
2002-03	2,923	11,368	10,830	626	24,872	50,619	2,581	4,399	1,056	58,655
2003-04	3,047	11,819	11,346	651	25,609	52,472	2,675	4,560	1,094	60,802
2004-05	3,170	12,271	11,862	675	26,346	54,324	2,770	4,721	1,133	62,948
2005-06	3,294	12,723	12,378	700	27,083	56,178	2,864	4,882	1,172	65,096
2006-07	3,417	13,174	12,894	725	27,820	58,030	2,959	5,043	1,210	67,242
2007-08	3,540	13,626	13,409	750	28,557	59,882	3,053	5,204	1,249	69,388
2008-09	3,664	14,078	13,925	774	29,295	61,736	3,148	5,365	1,288	71,537
2009-10	3,787	14,529	14,441	799	30,032	63,588	3,242	5,526	1,326	73,683
2010-11	3,910	14,981	14,957	824	30,769	65,441	3,337	5,687	1,365	75,830

Source: CPEC Staff Analysis

DISPLAY 3-30 First-Time Transfer Students to the California State University
Academic Year 1998-99 to 2010-11 (CPEC Low Alternative Projection)

	Community College Transfers						Other Transfers			
Year	African/ American	Asian	Latino	Native American	White/ Other	CCC Subtotal	Other Calif. Inst.	Out of State	Foreign	Total Transfers
1998-99	2,430	9,561	8,767	527	21,924	43,209	2,203	3,755	901	50,068
1999-00	2,505	9,882	9,143	542	22,368	44,441	2,266	3,862	927	51,495
2000-01	2,582	10,214	9,535	558	22,821	45,711	2,331	3,973	953	52,967
2001-02	2,662	10,557	9,944	574	23,284	47,021	2,397	4,086	981	54,485
2002-03	2,744	10,912	10,371	590	23,755	48,372	2,466	4,204	1,009	56,051
2003-04	2,829	11,278	10,816	607	24,237	49,767	2,537	4,325	1,038	57,667
2004-05	2,916	11,657	11,279	624	24,728	51,205	2,611	4,450	1,068	59,334
2005-06	3,006	12,049	11,763	642	25,229	52,690	2,686	4,579	1,099	61,054
2006-07	3,099	12,454	12,268	661	25,740	54,221	2,764	4,712	1,131	62,829
2007-08	3,195	12,872	12,794	680	26,261	55,802	2,845	4,850	1,164	64,660
2008-09	3,294	13,304	13,343	699	26,793	57,433	2,928	4,991	1,198	66,551
2009-10	3,395	13,751	13,915	719	27,336	59,117	3,014	5,138	1,233	68,502
2010-11	3,500	14,213	14,512	740	27,890	60,855	3,103	5,289	1,269	70,516

Source: CPEC Staff Analysis

DISPLAY 3-31 Anticipated Undergraduate Enrollment at the California State University by Enrollment Category Between Fall 1999 and Fall 2010, Using the Commission's Baseline Projection [1]

Fall	First-time Freshmen		Transfer Students		Continuing Students		Total Under-graduates
	Number	Percent	Number	Percent	Number	Percent	
1999	33,326	12%	34,984	12%	218,193	76%	286,504
2000	34,637	12%	36,422	12%	223,592	76%	294,651
2001	35,758	12%	37,861	12%	229,425	76%	303,044
2002	36,708	12%	39,299	13%	235,686	76%	311,693
2003	37,906	12%	40,737	13%	241,962	75%	320,605
2004	38,051	12%	42,175	13%	249,562	76%	329,788
2005	38,917	11%	43,614	13%	256,720	76%	339,252
2006	40,556	12%	45,052	13%	264,276	76%	349,884
2007	41,652	12%	46,490	13%	272,592	76%	360,734
2008	43,906	12%	47,929	13%	279,834	75%	371,669
2009	43,541	11%	49,367	13%	290,698	76%	383,606
2010	43,614	11%	50,806	13%	301,124	76%	395,544

1. This display includes first-time freshmen and transfer students entering only in the fall terms.

Source: CPEC Staff Analysis.

DISPLAY 3-32 Community College Transfers to the California State University, and Their Expected Graduation Rate (Transfer Rate Expressed per 1,000 Students by Age and Ethnic-Racial Group)

Racial/Ethnic Group	Year	Age-Group					Graduation Rate
		18 to 19	20 to 24	25 to 29	30 to 49	50 to 59	
African-Amer.	1998	3.3	26.0	22.7	13.7	6.6	
	2010	3.8	31.0	24.0	14.9	6.6	42.7
Asian	1998	5.2	58.9	37.6	11.3	2.7	
	2010	5.3	62.7	41.9	13.4	2.7	61.9
Latino	1998	2.2	33.3	23.2	11.3	3.4	
	2010	2.3	35.6	24.0	11.7	3.4	58.5
Native Amer.	1998	5.2	39.3	29.6	23.7	9.0	
	2010	5.2	50.0	30.2	23.7	9.0	57.2
White	1998	5.0	52.7	26.7	12.2	2.1	
	2010	5.3	59.5	29.9	13.2	2.1	66.1

Source: California State University; CPEC Staff Analysis.

Projected enrollment demand at the California Community Colleges

The California Community College system is the largest postsecondary system in the nation, and currently serves over 1.4 million adults and high school seniors. Since shortly after World War II, the community college mission has continued to evolve to meet the state's changing workforce and economic needs. Presently, the system is responsible statutorily for lower-division academic instruction, occupational and vocational education, adult education, remedial and basic skills education, and community service and avocation programs. In 1996, the California Community College's Board of Governors, and the Chancellor's Office, convened a task force to help guide the system in supporting statewide needs in the 21st century. It began work by reviewing several important technical papers prepared by Chancellor's Office staff, including *Funding Scenarios and Trends Important to the California Community Colleges*, and *Student Access*. In addition, the task force considered several planning recommendations addressed in the Commission's Report, *The Challenge of the Century* (CPEC, 1995a).

Among its major findings, the task force recommended that the community college system undertake immediate and deliberate measures to ensure educational opportunity and access to California adults at rates similar to those recorded during the middle 1970s. Beginning in the latter half of the 1950's, community college participation had increased steadily from approximately 40 students per 1,000 California adults to nearly 88 students per 1,000 adults in 1975. By Fall 1995, however, the peak participation rate had plummeted to 57.5 students per 1,000 adults.

In the Commission's 1995 enrollment study, staff noted that the declines in community college enrollments that occurred during the first half of the 1990s appeared to have resulted from legislative actions undertaken to manage growth in a time of fiscal uncertainty. For example, the 9.0 percent decline in community college enrollments that occurred between Fall 1992 and Fall 1993 coincided with the implementation of Senate Bill 766 (1992). This bill raised community college fees for students with a baccalaureate degree from $6 per unit to $50 per unit, increased fees for non-baccalaureate students from $6 per unit to $10 per unit, and removed the 10-unit limit on courses for which students would be charged. Subsequent legislative action in 1993 raised the enrollment fee for students without a baccalaureate degree from $10 per unit to $13 per unit.

With the sunset of Senate Bill 766 in 1996, and a return of student fees to $12 per unit, community college enrollments rose. Between Fall 1995 and Fall 1998, the system's total enrollment increased by nearly 10 percent, or 129,000 additional students. The Commission's Baseline Forecast indicates that student demand for the California Community Colleges will climb by 35.9 percent, or 528,918 additional students by Fall 2010 (Display 3-33). The annual average growth rate of 2.6 percent means that 82 of every 1,000 Californians age 15 to 59 will be enrolled in the community colleges by year 2010 – up from the present overall rate of 60.4 students per 1,000. Approximately 71 percent of the new student demand for the community colleges is expected to result entirely from population growth. Under the Commission's

DISPLAY 3-33 California Community Colleges Total Enrollment Demand, Fall 1998 to Fall 2010 (1999 CPEC Baseline Projection Series)

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Grand Total
1998	116,018	250,023	385,684	16,657	706,618	1,475,000
1999	118,716	257,627	400,196	16,958	719,071	1,512,567
2000	121,476	265,462	415,254	17,264	731,743	1,551,199
2001	124,301	273,535	430,878	17,576	744,638	1,590,929
2002	127,191	281,854	447,090	17,894	757,761	1,631,790
2003	130,149	290,425	463,912	18,218	771,115	1,673,819
2004	133,175	299,258	481,367	18,547	784,705	1,717,052
2005	136,272	308,359	499,479	18,882	798,533	1,761,525
2006	139,441	317,737	518,273	19,223	812,606	1,807,279
2007	142,683	327,400	537,773	19,571	826,927	1,854,353
2008	146,001	337,356	558,008	19,924	841,499	1,902,789
2009	149,396	347,616	579,003	20,284	856,329	1,952,629
2010	152,870	358,188	600,789	20,651	871,420	2,003,918

Percentage Changes

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Total Percent Change
1999	2.33%	3.04%	3.76%	1.81%	1.76%	2.55%
2000	2.33%	3.04%	3.76%	1.81%	1.76%	2.55%
2001	2.33%	3.04%	3.76%	1.81%	1.76%	2.56%
2002	2.33%	3.04%	3.76%	1.81%	1.76%	2.57%
2003	2.33%	3.04%	3.76%	1.81%	1.76%	2.58%
2004	2.33%	3.04%	3.76%	1.81%	1.76%	2.58%
2005	2.33%	3.04%	3.76%	1.81%	1.76%	2.59%
2006	2.33%	3.04%	3.76%	1.81%	1.76%	2.60%
2007	2.33%	3.04%	3.76%	1.81%	1.76%	2.60%
2008	2.33%	3.04%	3.76%	1.81%	1.76%	2.61%
2009	2.33%	3.04%	3.76%	1.81%	1.76%	2.62%
2010	2.33%	3.04%	3.76%	1.81%	1.76%	2.63%
Total Change	**31.8%**	**43.3%**	**55.8%**	**24.0%**	**23.3%**	**35.9%**

Source: Demographic Research Unit; CPEC Staff Analysis.

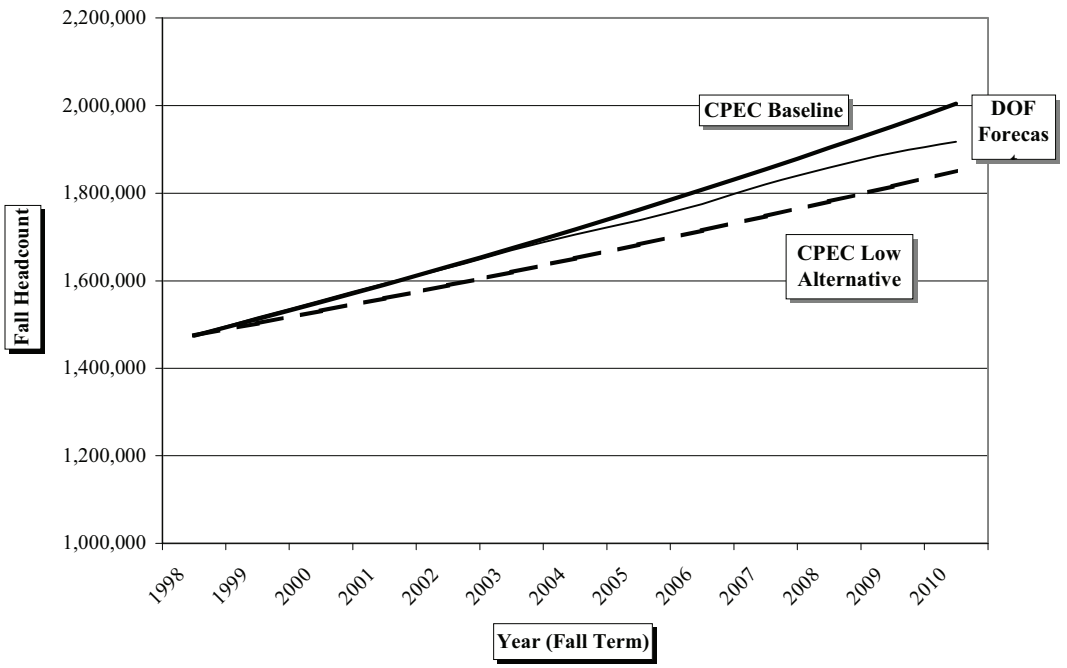
DISPLAY 3-34 California Community Colleges Total Enrollment Demand, Fall 1998 to Fall 2010 (1999 CPEC Low Alternative Projection Series)

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Grand Total
1998	116,018	250,023	385,684	16,657	706,618	1,475,000
1999	117,804	256,976	395,899	16,866	715,204	1,502,748
2000	119,617	264,121	406,385	17,078	723,893	1,531,095
2001	121,458	271,466	417,149	17,292	732,689	1,560,054
2002	123,327	279,015	428,198	17,509	741,591	1,589,640
2003	125,226	286,774	439,540	17,728	750,602	1,619,869
2004	127,153	294,748	451,182	17,951	759,722	1,650,755
2005	129,110	302,944	463,132	18,176	768,952	1,682,315
2006	131,097	311,369	475,399	18,404	778,295	1,714,564
2007	133,115	320,027	487,990	18,635	787,752	1,747,519
2008	135,164	328,926	500,915	18,869	797,323	1,781,198
2009	137,245	338,073	514,183	19,105	807,011	1,815,617
2010	139,357	347,474	527,802	19,345	816,816	1,850,794

Percentage Changes

Year (Fall Term)	Racial/Ethnic Category (Undergraduate Students) African/ American	Asian	Latino	Native American	White/ Other	Total Percent Change
1999	1.54%	2.78%	2.65%	1.25%	1.22%	1.88%
2000	1.54%	2.78%	2.65%	1.25%	1.22%	1.89%
2001	1.54%	2.78%	2.65%	1.25%	1.22%	1.89%
2002	1.54%	2.78%	2.65%	1.25%	1.22%	1.90%
2003	1.54%	2.78%	2.65%	1.25%	1.22%	1.90%
2004	1.54%	2.78%	2.65%	1.25%	1.22%	1.91%
2005	1.54%	2.78%	2.65%	1.25%	1.22%	1.91%
2006	1.54%	2.78%	2.65%	1.25%	1.22%	1.92%
2007	1.54%	2.78%	2.65%	1.25%	1.22%	1.92%
2008	1.54%	2.78%	2.65%	1.25%	1.22%	1.93%
2009	1.54%	2.78%	2.65%	1.25%	1.22%	1.93%
2010	1.54%	2.78%	2.65%	1.25%	1.22%	1.94%
Total Change	**20.1%**	**39.0%**	**36.8%**	**16.1%**	**15.6%**	**25.5%**

Source: Demographic Research Unit; CPEC Staff Analysis.



Source: Demographic Research Unit; CPEC Staff Analysis.

Low Alternative, community college demand is projected to increase by 25.4 percent, or 375,794 (Display 3-34 and 3-35).

In deriving community college demand, the proportion of the state's population (by racial/ethnic and age group) that enrolled in a community college during the past 10 years were tracked. This cross-comparison of enrollment by ethnic-racial and age group generated 30 independent participation rates that supported the conclusion that California's younger adults were affected least by legislative policies designed to curtail enrollment growth during recession years. In contrast, participation rates of older adults were more volatile during the early 1990s. Since 1995, however, participation rates among the primary community college age cohorts (i.e., 18-19, 20 to 24, and 25 to 29) have improved at a steady pace. The Commission expects rates for these groups, across all ethnic categories, to continue to increase moderately throughout the next decade (Display 3-36).

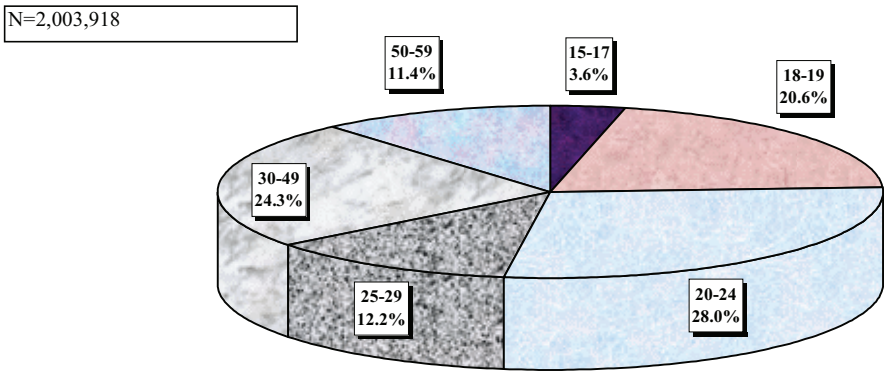
Factors that are expected to contribute to increased participation include: (1) a favorable California labor market for jobs in which the community colleges are a major provider of training and preparation; (2) a shift in the State's economy from industrial jobs to service-oriented jobs that will require educational experience beyond high school; (3) the community college's expanded role in remedial education, and (4) system strategic planning initiatives that are intended to improve student access, transfer readiness, certificate and licensure completion rates, basic skills acquisition, and welfare to work transition. The overall participation rate of 60.4 students per 1,000 adults would

DISPLAY 3-36 California Community College Enrollment Demand by Age-Group and Racial/Ethnic Group

Racial/Ethnic Group	Year	Age-Group 15 to 17	18 to 19	20 to 24	25 to 29	30 to 49	50 to 59
African-Americ	1997	3.3%	27.6%	17.3%	10.0%	5.8%	3.7%
	2010	4.2%	28.7%	18.4%	11.1%	6.7%	4.0%
Asian	1997	4.8%	38.6%	28.2%	12.6%	5.1%	5.9%
	2010	5.1%	39.4%	28.2%	12.6%	5.7%	6.1%
Latino	1997	2.1%	23.9%	15.8%	6.2%	3.1%	2.5%
	2010	3.0%	25.2%	16.9%	7.3%	4.1%	2.8%
Native America	1997	6.9%	52.5%	33.5%	17.0%	8.1%	5.8%
	2010	7.2%	53.0%	34.5%	18.0%	9.1%	6.8%
White	1997	4.1%	31.9%	17.9%	8.1%	3.8%	4.9%
	2010	4.4%	33.9%	18.9%	9.1%	4.3%	4.9%

Source: Demographic Research Unit; CPEC Staff Analysis.

DISPLAY 3-37 Anticipated California Community College Enrollment by Age Group, with Percentage Distribution, Fall 2010



Source: CPEC Staff Analysis.

rise to 75.8 students per 1,000 adults by year 2010, even if participation rates were to remain constant at Fall 1998 levels. This would occur because of the differential growth patterns that are projected to occur among California's various age-groups. As noted earlier, two of the state's traditional college age-groups (18 to 19, and 20 to 24) are projected to grow twice as rapidly as the state's general population. Because these age-groups also are expected to account for nearly half of community college enrollments, there would be

more students enrolled in the community colleges per 1,000 adults by year 2010 even if all 30 participation rates remained constant. The projected age-group representation of community college students in 2010 is presented in Display 3-37 above.

Enrollment demand implications for the State's independent and private colleges and universities

According to the report, *The Uncertain Partnership*, by the Association of Independent Colleges and Universities (AICCU, 1995), the independent colleges and universities represent the oldest higher education tradition in California, as evidenced by the founding of Santa Clara University and the University of Pacific in the 1850s several years before the first public college was established. A discussion of enrollment demand would not be complete, therefore, without recognizing the significant contribution that private independent colleges and universities make in supporting the instructional, professional, and research needs of California. Presently, 637 independent and private institutions participate in federal student aid programs (Title IV) in California, which means that students who attend these institutions are eligible to apply for student financial aid. These institutions have diverse missions and offer a wide range of certificate, degree, and professional training programs.

The majority of the 637 non-public institutions in California are vocational-technical institutes. A subset of about 200 degree-granting independent and private institutions that are headquartered in California – such as Stanford University, National University, the University of Southern California, Westmont College, Mills College, and the San Francisco Conservatory of Music – account for about 24 percent of all undergraduate enrollment at four-year institutions in the state, and about 57 percent of graduate enrollment. Consistent and reliable enrollment data for these 200 institutions has been difficult to obtain and track over time because, until Fall 1998, the sector was not required to submit annual Integrated Postsecondary Education Data System (IPEDS) enrollment data to the California Postsecondary Education Commission.

There were 176,832 undergraduates were enrolled in the degree-granting independent and private colleges and universities in Fall 1998 and 146,705 students were enrolled in graduate programs offered by those institutions (Display 3-38). These figures do not include students enrolled in one of the over 2,000 non-degree-granting, proprietary and non-profit vocational schools that are approved by the Bureau of Private Postsecondary and Vocational Education within the State Department of Consumer Affairs, nor do the figures include students enrolled in institutions such as the University of Phoenix, which has 17 educational sites throughout California, but which is headquartered in Arizona. This later group of institutions submit IPEDS enrollment forms directly to the federal government from their primary state of business.

Of the approximately 200 independent and private institutions that report enrollment data to the Commission, 74 are members of the AICCU and are accredited by the Western Association of Schools and Colleges (WASC). A 1991 provision of the State's Educational Code recognized the shared re-

DISPLAY 3-38 Undergraduate and Graduate Enrollment Among the 200 California Independent and Private Colleges and Universities that Submitted IPEDS Enrollment Forms to the Commission for Fall 1998

Item	Enrollment	Percent
African-American	12,171	6.9%
Asian	30,110	17.0%
Latino	28,745	16.3%
Native American	1,606	1.0%
White/Other	92,886	52.5%
Foreign Students	11,314	6.3%
Total Undergraduate Students	176,832	54.7%
Total Graduate Students	146,705	45.3%
Total Students	323,537	100.0%

Source: Association of Independent California Colleges and Univeristies

sponsibility of the AICCU institutions and the State's public higher education system in providing educational opportunity and success to the broadest range of Californians (State Education Code §66010.2). The remaining non-public degree-granting institutions are recognized by the U.S. Department of Education. The AICCU institutions account collectively for about 95 percent of the total student enrollment of comprehensive non-public institutions. The sector continues to provide graduate research education to more part-time working adults. In Fall 1998, 43 percent of the graduate students enrolled in independent colleges and universities were part-time adult students, in comparison to 7.0 percent of UC graduate students and 74 percent of CSU graduate students. AICCU reported in 1995 that the "sizable student population, workforce, and portfolio enabled the independent sector to contribute $13 billion annually to the economy of California" (AICCU, 1995).

Establishing reliable demand estimates for the independent and non-public degree-granting sectors is a difficult and complex challenge for several reasons. First, each non-public institution is governed by an independent governing board. Decisions about growth may or may not be directly related to demographic and socioeconomic conditions in the state. That is, although these institutions continue to demonstrate responsiveness to State needs, individual decisions about growth are dispersed among the individual boards. The AICCU (1999) notes that growth in the independent sector during the last decade has come from unexpected places. In order for the Commission to estimate demand for the independent sector with a reasonable degree of

precision, more information is needed regarding the influence of demographic factors on the enrollment planning efforts of the state's independent colleges and universities.

Second, student demand among the independent institutions has tended to vary with various institutional and systemic decisions. For example, over the preceding decade the number of California residents enrolled in independent institutions varied in part with the maximum level of Cal Grant award. In the 1995 AICCU study of the financial condition of independent colleges, it was observed that as the value of the maximum Cal Grant award declined in relation to the average tuition in the sector, the percentage of California resident students enrolled in the sector declined. As a result, California's independent colleges recruited out-of-state students more heavily. Over the last several years though, as the value of the maximum Cal Grant has been restored, the percentage of California residents enrolled in the independent sector has begun to return to historical levels. In fact, recent growth among some independent institutions has been greater than the average undergraduate enrollment growth in the public sector. If this trend continues, the independent sector in the future may accommodate a greater share of total undergraduate enrollment in the state.

The AICCU has devised a general classification system that categorizes its affiliated member institutions based on such descriptors as enrollment, budget size, endowment, average faculty salary, educational mission, and basic curricula (Display 3-39).

DISPLAY 3-39 AICCU Classification of Independent Colleges and Universities

Classification Group	Group Description
Group I	Doctoral Research Universities
Group IIA	Comprehensive Universities (FTE Enrollment of 2,500 to 7,000)
Group IIB	Comprehensive Colleges and Universities (FTE Enrollment of 1,000 to 5,000)
Group III	Liberal Arts College with a high level of Endowment
Group IVA	Liberal Arts Colleges and Universities (FTE Enrollment of 500 to 1,000)
Group IVA	Small Liberal Arts Institutions (FTE Enrollment of 300 to 1,000)
Group V	Specialized Institutions
Group VI	Professional Schools

The Commission believes that it would be appropriate to apply the AICCU classification system to the expanded class of independent degree-granting institutions, both members and non-members of AICCU, as a framework for analyzing historical enrollment patterns and as an analytical tool for estimating future student demand. The comprehensive independent institutions tend to be subject to at least some of the demographic and economic pressures similar to those of the State's public four-year universities. It seems reasonable, therefore, that the Commission's student-flow model could be used to apply average persistence and graduation rates observed in the independent sector to projected numbers of new freshmen and transfer students to this sector to simulate the likely enrollment life histories of students from entry to final departure.

The Commission's model would also have to include relevant factors specific to the independent sector including all of the following:

- *A recognition that net price in the sector affects enrollments*. For example, if the rate of tuition increase exceeds the rate of change in personal income in the state, students may be less likely to enroll in an independent college.

- *The level of governmentally and institutionally provided student assistance available to students*. The difference between posted price and net price may affect both the type of students attracted to the sector as well as the number of students attracted.

- *The relationship between net prices in the public sector and net prices in the independent sector*. If there is a wide difference between those two figures, then enrollments among the independent sector may tend to decline.

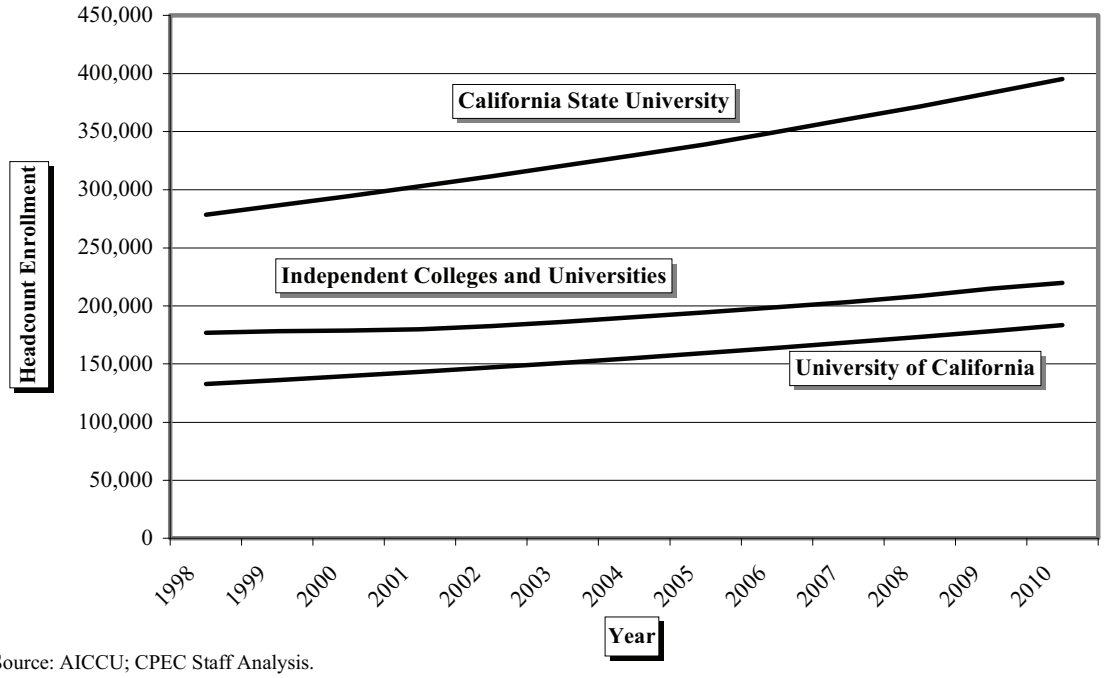
- *The perceived educational value and instructional quality in the independent sector*. If families and students perceive that the sector offers better value, for example either through higher graduation rates or more personalized education, then participation rates may increase.

- *The level of tuition dependency in the sector*. As the proportion of total revenue coming from tuition increases, the flexibility of the sector to respond to new needs and challenges will likely diminish.

At present, the Commission's enrollment demand database does not include the necessary longitudinal information described above to derive valid and reliable projections of student demand in the independent sector. Even so, it is important that the Commission at least provide State officials and policymakers with a rough estimate of the likely contribution of the independent sector in helping to meet the educational goals of Californians over the next 12 years. To derive a general estimate of student demand for the independent colleges and universities, the Commission calculated ethnic-specific undergraduate participation rates based on the 197 institutions that submitted official IPEDS enrollment forms.

The calculated participation rates were applied to the Department of Finance's population projections by ethnic-racial category for the traditional undergraduate college-going age cohort (18 to 29). The result suggests that, if current participation rates remain fairly stable over the next 12 years, the undergraduate demand for the independent sector would increase from 176,832 in Fall 1998 to 220,060 by year 2010. This translates to a 24.4 percent increase or 43,228 additional students. The independent sector would continue to account for a substantial portion of student demand among four-year colleges and universities (Display 3-40). If graduate students continue to comprise about 45.3 of total enrollment in the independent sector, then the Commission estimates that graduate demand in this sector may increase from 146,705 in Fall 1998 to 182,244 by year 2010 (Display 3-41).

DISPLAY 3-40 Undergraduate Enrollment Demand Projections, California Public and Private Four-Year Colleges and Universities, Fall 1998 to Fall 2010



Source: AICCU; CPEC Staff Analysis.

If participation rates among the independent sector return to historical peak levels, then the market share of total undergraduate demand among comprehensive baccalaureate degree-granting institutions (public and non-public) accommodated by the independent sector may increase from 24 percent to 30 percent by 2010. This growth would translate to 65,891 additional students beyond the number the number of students enrolled in non-public degree-granting institutions in Fall 1998.

DISPLAY 3-41 Estimate of Undergraduate and Graduate Enrollment Demand at 197 Degree-Granting Independent and Private Colleges and Universities That Participate in Title IV Student Financial Aid, Fall 1998 and Fall 2010

Item	Fall 1998 Enrollment	Fall 2010 Estimated Enrollment (Option A)[1]	Fall 2010 Estimated Enrollment (Option B)[2]
African American	12,171	14,363	16,196
Asian	30,110	41,831	47,169
Latino	28,745	38,504	43,417
Native American	1,606	1,731	1,952
White/Other	92,886	109,552	123,532
Foreign Students	11,314	14,079	15,877
Total Undergraduate Students	176,832	220,060	248,143
Total Graduate Students	146,705	182,244	205,501
Total Students	**323,537**	**402,304**	**453,644**

1. Current participation rates held constant.
2. Assumes moderate increase in participation rates. This demand estimate assumes that the non-public postsecondary sector would increase its share of total undergraduate demand among 4-year institutions from 24 percent to 30 percent by 2010.

Concluding enrollment demand remarks

The Commission's higher education enrollment demand projections contained in this chapter were derived with the assistance of key demographers, enrollment planners, and educators who lent technical expertise in helping staff interpret and analyze the demographic, cognitive and socioeconomic factors presumed to influence college-going behavior and participation. When these factors were incorporated into the Commission's enrollment model, the results revealed that over 2.7 million persons would be seeking enrollment in California public colleges and universities by 2010. The 35.8 percent growth in enrollment demand translates to 714,753 additional students beyond the number of students participating in public higher education in Fall 1998. Further analysis of these new students reveals that they undoubtedly will be the most diverse student body in California history with respect to academic and career interests, demographic makeup, socioeconomic status, and preferred learning style. They will also be the first generation of students who will be almost completely comfortable with technology, and who will therefore expect technology to be fully integrated into nearly all of their educational experiences.

Although the Commission's Baseline Forecast reflects substantial growth in student demand over the next 12 years, there are a number of strategic planning initiatives that have been expanded or implemented recently that may lead to even greater demand than is implied by this present enrollment study. Although the Commission took many of these programs into account when it estimated future participation rates, it is quite probable that their impact on student demand may have been understated or underestimated. That is, the Commission made very conservative judgments about the likely impact of recent initiatives because the evaluative tools needed to estimate potential program success are just now being designed by the systems. Consequently, it is not possible at this time to predict quantitatively what effect certain programs might have on student demand in the immediate and distant future. Instead, the Commission reviewed carefully the philosophy of selected initiatives and programs to determine the educational values (e.g., student access, motivation, academic preparation) that are intended to be addressed by them and then related these values to various facets of student demand. Once done, the Commission evaluated the institutional and organizational arrangements that have been put in place to achieve desired outcomes. Quite often, educational improvement programs have failed to achieve specific aims and purposes because the treatment services rendered were not arranged and interconnected in a logical and coherent fashion.

The outreach programs of the University of California and the California State University represent a significant educational improvement strategy that may have a more immediate impact on student demand than the Commission currently anticipates. Traditionally, outreach programs have delivered academic enrichment programs and services to underrepresented racial groups primarily at the high school level. For example, Summer Bridge Programs and Science Academies have proven to be quite successful in helping high school students transition to college. Such programs, however, have had limited impact on student demand because they tended to target those students who were already on a college-preparatory track.

More recently, higher education outreach programs have begun to place greater emphasis on student achievement at the primary level that, in the future, should lead to a more substantial college-preparatory pool at the senior high-school level. Equally significant, both UC and CSU are expanding the breadth of their outreach programs to address the full range of cognitive and environmental factors associated with college eligibility and student academic achievement. For example, UC Davis's *Reservation for College Program* is based on the philosophy that college begins in Kindergarten. The program offers a full range of services to selected 4th grade students in the Sacramento area. Moreover, UC Davis has committed to paying the college fees of all student participants attending Oak Park elementary school – the pilot site – who continue in the program through high school.

In general, the UC and CSU outreach programs stress common goals, shared responsibility (i.e., students, families, teachers, counselors, and administrators) and public accountability. The Commission believes that the major impact of early outreach programs will be noticeable in year 2008, when current

4th grade participants become high school seniors. It is quite possible, though, that significant program effects may become evident much sooner.

Another significant initiative that is likely to impact student demand is the California State University's *Cornerstones* planning framework. This initiative rests on four fundamental CSU commitments: (1) providing educational excellence in a student-centered environment; (2) ensuring educational access to a growing population of learners with diverse learning preferences and aspirations, while not sacrificing excellence; (3) monitoring and providing evidence of student success and institutional effectiveness for public accountability purposes; and (4) linking the CSU more effectively with changing economic and labor market needs of the State. These important commitments collectively are likely to have a profound effect on CSU course completion and graduation rates. Improving these rates just a few percentage points means that many more students of an entering class will likely re-enroll each semester until eventual graduation.

Finally, the California Community College's *Partnership for Excellence* initiative also has immense implications for future student demand. The initiative received official approval in 1998 and represents a mutual commitment by the State Legislature and the California Community Colleges to further the social and economic success of California in the coming decade. The partnership committed the State to funding community college enrollment expansion and participation through Fall 2005. The State also has agreed to protect the system from inflationary erosion by proving annual cost-of-living adjustments and by investing $100 million (incentive funds) annually in the community college's base apportionment funding. In exchange, the community colleges have committed to achieving institutional outcomes that reflect high-priority policy objectives of the State. The initiative has established performance goals related to transfer, successful course completion, certificate and licensure completion rates, basic skills acquisition, and workforce preparation.

The strategic programs described above are but a few of the noteworthy programs that may result in greater student demand than has been suggested by the present study. The Commission will chart the success of these programs and the student outcomes that flow from them.

4 Stresses and Strains: An Analysis of Enrollment Capacity

Introduction

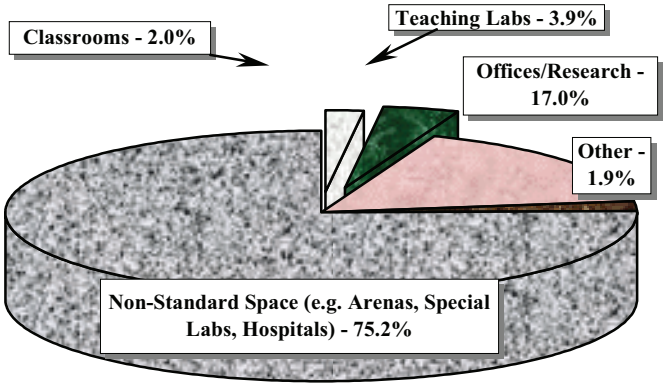
California public higher education maintains a statewide physical inventory of approximately 116.7 million assignable square feet (ASF) of space in three public systems and 137 campuses. There are additional thousands of leased and donated outreach operations and off-campus centers, plus field stations, observatories, research centers, and the University of California's energy laboratories at Berkeley, Livermore, and Los Alamos in New Mexico. It is a diverse and widely distributed archipelago of land and buildings that serves a growing population of about two million California residents who attend its campuses, centers, and specialized facilities.

The uses of this space are as varied as modern life, since higher education's structures include everything from simple classrooms and offices; state-of-the-art academic, vocational, and research laboratories of every description; to observatories, libraries, and child care centers. Included are sports arenas, museums, cultural centers, hospitals, theaters, student unions, auditoria, dormitories, auto shops, and computer laboratories. The State is responsible for about three-fourths of this space (about 87.8 million ASF). The remaining space is found principally within the University of California, and include arenas, student unions, living quarters, and some of the health science facilities, although health science education remains a primary State responsibility. Funds for this latter category come from the federal government, housing and parking fees, private contributions, and other non-State sources.

Classrooms and teaching laboratories occupy very large amounts of space within the California Community Colleges, very little space at the University of California, and a moderate amount in the State University (Displays 4-1, 4-2, and 4-3). Specifically, only 5.9 percent of the University's total space consists of classrooms and teaching laboratories, while those space types comprise 44.5 percent of the space in the community colleges. If the hospitals, specialized research facilities, and other spaces for which the State is not primarily responsible are removed, UC classrooms and teaching labs increase their share to 11.6 percent, but it is still a small portion of the total. At CSU, teaching facilities comprise 23.5 percent of the total space.

While these numbers may seem surprising, the more complex an institution of higher education becomes, and the more responsibilities it assumes, the smaller the role played by regular classroom instruction. The University of California's responsibilities 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 nine campuses than does the State University with 22 campuses, or the community colleges with 106.

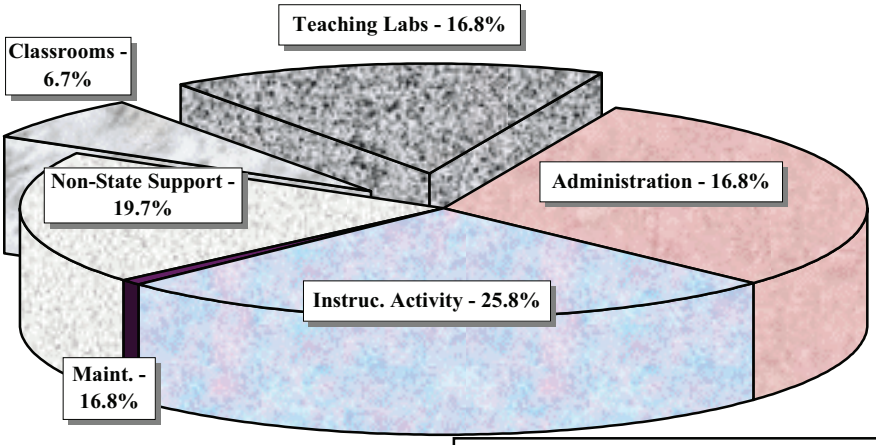
DISPLAY 4-1 Space Distribution at the University of California, 1998



53.2 Million Assignable Square Feet (Incl. Health Sciences)

Source: University of California, 1998 and 1999

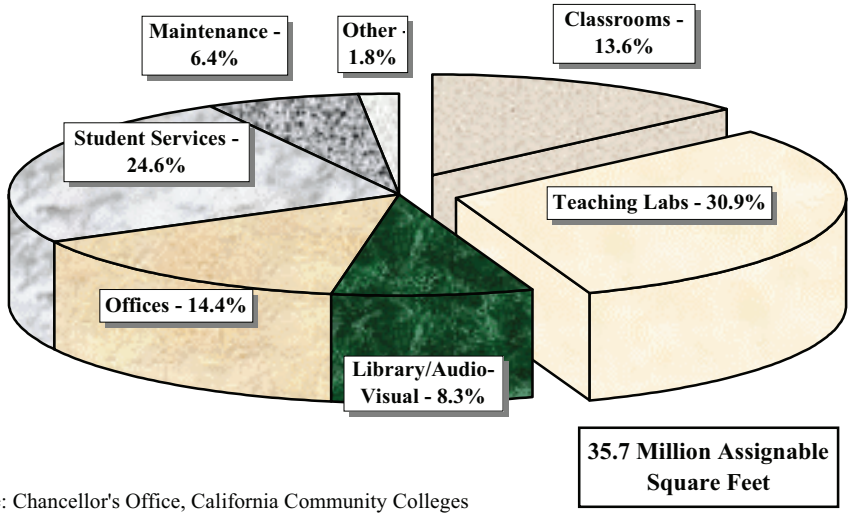
DISPLAY 4-2 Space Distribution at the California State University, 1998



27.8 Million Assignable Square Feet (Including Non-State Supported Space)

Source: California State University, 1999

DISPLAY 4-3 Space Distribution in the California Community Colleges, 1998



Source: Chancellor's Office, California Community Colleges

Space standards and enrollment capacity

California's enormous higher education enterprise has evolved over the course of more than a century, and increased in complexity throughout its entire history. It is prudent, therefore, to inquire not only how it came to be, but also how it might be planned in the future. The Commission provided a history of the physical development of higher education in its 1990 report *A Capacity for Learning* (CPEC, 1990c). That report provided a detailed description of space and utilization standards: the mathematical measures that determine the need for such facilities as classrooms, teaching laboratories, faculty offices, and libraries. It also noted that many facilities, in fact most, are not subject to specific measurement standards, nor are the standards considered when the capacity of the institution is determined. This remains true both because higher education contains many specialized facilities for which standards are difficult to create, and also because policymakers in the post-WWII era concluded that enrollment capacity in higher education should be determined by the availability and usage of classrooms and teaching laboratories alone.

That conclusion was based on the assumption that virtually all instruction would take place in those facilities, and that other needs in the physical plant – libraries, administration, plant maintenance, etc. – would be built as circumstances dictated. This is changing. With the advent of the Information Age, and the growing complexity in the development of knowledge generally, the role of technology has increased, and the nature of instruction has changed. Today, the lines between classrooms and teaching laboratories are increasingly blurred. As almost all students have come to have access to computers and networks – the Internet above all – the classroom has become anywhere a student can plug in a notebook computer, be it the library, a fac-

ulty office, or a research laboratory. What once was considered a classroom may now, with the addition of computer workstations, be seen as a laboratory. Further, as research has become a growing emphasis in the instructional process, even at the undergraduate level, the lines between "teaching" laboratories and "research laboratories" have become similarly faint, so much so that many facilities administrators have come to believe that a complete overhaul of the space standards that were developed in the 1950s through the 1970s is necessary.

Such a re-evaluation of the old facilities paradigm is now underway, particularly in the California State University, where the Chancellor's Office has developed a new process termed "ASF per FTE" (Assignable Square Feet per Full Time Equivalent student). The fundamental principle is that space should not be measured solely by the activity generated in classrooms and teaching labs, but in the activity of the entire campus. In fact, with the activity generated beyond the campus's physical boundaries now included, it has become possible to gauge the total impact of the campus's existence.

Under this new system, each CSU campus is assigned an ASF/FTE allocation or target that will average around 75 ASF/FTE for the entire system, but with a range between 64 and 106 depending on a host of factors including campus size (smaller campuses tend to have more space per student than large campuses that can employ economies of scale) and curricular mix (campuses with heavy emphases in science and engineering generally have more space per student than campuses with emphases in liberal arts and humanities).

In some cases such as the California Maritime Academy (currently 182.92 ASF/FTE) or California State University, Monterey Bay (120.02 ASF/FTE), there are special circumstances that inflate the number. The Maritime Academy is a specialized facility with large vocational and engineering laboratories; Monterey Bay was taken over from the military (formerly Ford Ord) and is undergoing a campuswide renovation that will convert large military areas into academic ones. Over time, it is expected that the ASF/FTE at the Monterey Bay campus will be reduced substantially.

The ASF/FTE system has been built on the existing system of space standards for each type of space where the standards apply (so-called "standard space"), with no attempt to liberalize the formulas currently in place[1]. Space types for which there are no standards are included as they currently exist, then added to the subtotal for standard space to produce the overall figure. In the future, it is anticipated that each campus's ASF/FTE number will change as enrollments grow, the discipline mix changes, and other adjustments are made to fit special circumstances.

Overall, the Commission believes that the ASF/FTE system, or something very much like it, will provide campus planners with a flexibility in the con-

[1] The current space and utilization formulas for classrooms and teaching laboratories were adopted by the Legislature as "temporary" measures in 1970 (classrooms) and 1973 (teaching laboratories). A major study by the Commission in 1990 (CPEC, 1990c) recommended numerous changes, but none has been adopted into law.

struction and renovation plans that has heretofore been absent. For example, architects and planners will no longer be restricted to building classrooms at exactly 15 ASF per station, as called for in the current standard. If more space per station is needed – because of building code changes or new health and safety requirements – or perhaps less space per station for a larger classroom or lecture hall, planners will have the flexibility to make the necessary changes so long as they do not exceed the overall campuswide allocation[2]. It may also give planners the opportunity to add facilities regarded as essential to the academic program, but that do not fit into the confines of the old system. If efficiencies can be found in some other part of the physical plant, the flexibility may be gained to build the space required. Finally, because the new formula takes the entire physical plant into account, it can act as a natural check on overly ambitious campus planning that concentrates on adding space that falls outside of the current formulas. Such space constitutes a majority of the space on most four-year university campuses.

Determining the physical capacity of California higher education

The ASF/FTE system is not currently the dominant paradigm guiding the efforts of planners and policy makers, but will likely gain more adherents. In the interim, it is useful to highlight the share classrooms and laboratories occupy in higher education, the current benchmark for determining enrollment capacity. An examination of these two space types alone can be useful if good prior planning has produced a balanced physical plant. In other cases, however, it is entirely possible to have adequate classrooms and teaching laboratories, or even surpluses, yet be unable to add any additional students due to shortages of support facilities. Accordingly, and as noted above, any analysis of higher education's capacity that fails to take into account the entire physical plant is certain to be incomplete at best, or produce a false and misleading impression at worst. A classic case of this at the University of California's Los Angeles campus. At UCLA, as shown in Display 4-4, there is a technical surplus of classroom space sufficient to give the impression that it could enroll an additional 11,322 full-time-equivalent students (FTES), yet enrollments are already above a listed capacity that was derived by an analysis of the entire physical plant. UCLA currently enrolls about 31,000 students, is land locked in the Westwood community, and has no room to expand. Therefore, increasing the size of that campus to about 42,000 students is not possible.

Other examples of space standards giving a distorted view of actual capacity fall into a general category the Commission has chosen to call the "Mismatch Problem." One important aspect of it includes circumstances where the sizes of classrooms on a particular campus do not fit the courses planned to be offered in them. Another includes classrooms that exhibit antiquated designs that cannot accommodate modern media presentations, do not have sufficient wheel chair access, or cannot be used because they are not properly wired for computers or multi-media equipment. In other cases, there are mismatches in entire systems, particularly in the State University and the community col-

[2] In some cases, the total campus-wide allocation can be increased, particularly if the curriculum mix changes to courses and programs requiring greater amount of instructional space.

leges, where population shifts have rendered some colleges overcrowded and others underutilized. The systemwide averages may suggest an adequacy of classroom space, but the actual location of facilities and students may have the effect of reducing that adequacy to a significant degree.

The Commission's analysis of higher education space shows that the most serious problem lies with classrooms. In the community colleges, for example, classroom capacity-load ratios (the formulas that measure the sufficiency of classroom space) suggest that virtually every district has surplus space. However, this "surplus" is results from space-usage technical requirements that are not only the highest in the nation, but are unsupportable. The Legislature adopted these "temporary" standards in 1970 and has resisted any change to them. It is also apparent that the three systems have been successful in persuading the Legislature to exceed those standards since: every subsequent utilization report and inventory survey has shown significant excesses in classroom space. Were the standards being strictly enforced, which it is likely they would be if they were reasonable, it is almost certain that there would be a far greater balance between needed and available space.

Such a balance is more evident in the teaching laboratory category, particularly in the community colleges, which have consistently shown only slight excesses or deficiencies. The Commission noted this in 1990 when it found that teaching laboratory standards were tight, but still fundamentally reasonable (CPEC, 1990c).

As the Commission indicated in 1995 in a long-range planning report, *A Capacity for Growth* (CPEC, 1995b), it is always necessary to use space standards with considerable caution. It is clear from the UCLA example – and the "mismatch problem" noted above – that, while the analysis of enrollment capacity may start with the standards for classroom and laboratory utilization, it should no longer end there.

The next three subsections of this chapter offer a Commission analysis of public higher education's current physical ability to enroll both today's students, and to provide for the huge projected growth in enrollment demand. It offers a similar conclusion in each case: there is some excess capacity at the present time, an excess that may evaporate as students enter the State's colleges and universities in the 1999-00 academic year, and will surely disappear shortly thereafter. Of the three systems, the community colleges have the greatest space surplus, yet are expected to experience the strongest growth in absolute numbers. There is also strong growth, but a more modest surplus, in the California State University. In each case, without extraordinary efforts to either build new facilities, or use the existing campuses and centers more efficiently, California will shortly be unable to accommodate all of those who desire public postsecondary education.

With that prelude to the larger discussion, the Commission offers its analysis of current physical capacity of higher education. The cost of building additional capacity, as well as of maintaining the existing physical plant in good working order, will be discussed in Part Five.

University of California

Recently, the Commission published a report on the advisability of adding a tenth campus to the UC system, *Opening the Central Valley* (CPEC, 1999a). It included an examination of the University's statewide ability to admit additional students, and reached the conclusion that while some space is available, the coming enrollment surge discussed previously will soon overwhelm whatever space may currently be unused.

DISPLAY 4-4 Analysis of University of California 1997 Technical Enrollment Capacity (Based Solely on the 1970 and 1973 Legislative Space Standards)

	Classrooms			Teaching Laboratories			Total	
Campus	**WSCH[1] Capacity[3]**	**WSCH[1] Load**	**WSCH[1] Capacity Exceeds Load**	**WSCH Capacity[1,4]**	**WSCH[1] Load**	**WSCH[1] Capacity Exceeds Load**	**WSCH[1] Capacity Exceeds Load**	**FTES[2] Capacity Exceeds Load[5]**
Berkeley	414,736	350,001	64,735	53,700	48,325	5,376	70,110	**5,010**
Davis	220,968	246,879	-25,911	49,085	59,063	-9,978	-35,889	**-2,540**
Irvine	236,209	193,447	42,762	15,165	22,394	-7,229	35,534	**2,694**
Los Angeles	507,336	361,341	145,995	33,953	29,528	4,425	150,420	**11,322**
Riverside	141,488	106,739	34,749	17,969	17,836	133	34,883	**2,683**
San Diego	196,264	222,038	-25,774	25,476	20,904	4,572	-21,202	**-1,501**
Santa Barbara	213,397	222,752	-9,355	37,773	37,401	372	-8,982	**-631**
Santa Cruz	125,592	132,290	-6,698	20,550	20,011	539	-6,159	**-428**
Totals	2,055,992	1,835,487	220,505	253,671	255,462	-1,790	218,714	**16,609**

1. WSCH = Weekly Student Contact Hours
2. FTES = Full-Time-Equivalent Students
3. Capacity determined by using 1970 legislative standards of .43 ASF/WSCH + 10% for service space (ASF = Assignable Square Feet, the measure of space that can actually be occupied).
4. Capacity determined by using 1973 legislative standards that vary by type of laboratory.
5. WSCH divided by mean contact hours per headcount student on each campus to determine FTES.

Source: UC, 1999b.

The Commission's analysis, included as Display 4-4 above, shows a 1997 space surplus sufficient for an additional 16,609 FTES on the eight general campuses; Display 4-5 provides a more realistic estimate of the actual space surplus. After deducting all but 1,000 FTES of the enrollments the technical standards indicate could be enrolled without additional facilities, the excess drops to 2,277 FTES. The 1,000 figure is a rough estimate, because both the Berkeley and UCLA campuses are at their approximate capacities. This change eliminates most of the alleged excess capacity within the University of California system, and provides a clearer picture of UC's real ability to enroll additional students without building new facilities.

DISPLAY 4-5 Analysis of University of California 1997 Enrollment Capacity Adjusted for Reduced Capacity at the Berkeley and Los Angeles Campuses

Campus	Classrooms			Teaching Laboratories			Total	
	WSCH[1] Capacity[3]	WSCH[1] Load	WSCH[1] Capacity Exceeds Load	WSCH Capacity[1,4]	WSCH[1] Load	WSCH[1] Capacity Exceeds Load	WSCH[1] Capacity Exceeds Load	FTES[2] Capacity Exceeds Load[5]
Berkeley	414,736	350,001	64,735	53,700	48,325	5,376	70,110	***1,000***
Davis	220,968	246,879	-25,911	49,085	59,063	-9,978	-35,889	-2,540
Irvine	236,209	193,447	42,762	15,165	22,394	-7,229	35,534	2,694
Los Angeles	507,336	361,341	145,995	33,953	29,528	4,425	150,420	***1,000***
Riverside	141,488	106,739	34,749	17,969	17,836	133	34,883	2,683
San Diego	196,264	222,038	-25,774	25,476	20,904	4,572	-21,202	-1,501
Santa Barbara	213,397	222,752	-9,355	37,773	37,401	372	-8,982	-631
Santa Cruz	125,592	132,290	-6,698	20,550	20,011	539	-6,159	-428
Totals	2,055,992	1,835,487	220,505	253,671	255,462	-1,790	218,714	***2,277***

1. WSCH = Weekly Student Contact Hours
2. FTES = Full-Time-Equivalent Students
3. Capacity determined by using 1970 legislative standards of .43 ASF/WSCH + 10% for service space (ASF = Assignable Square Feet, the measure of space that can actually be occupied).
4. Capacity determined by using 1973 legislative standards that vary by type of laboratory.
5. WSCH divided by mean contact hours per headcount student on each campus to determine FTES.

Source: UC, 1999b.

With that number as a starting point for the 1997-98 academic year, it is then possible to estimate the extent to which physical capacity will increase over the next few years. This estimate is derived from the University's five-year plan, and from its annual inventory report to the Department of Finance and the Legislative Analyst (UC, 1999b). The result shown in Display 4-6 -- with 1998-99 as a starting point to conform with the enrollment projection -- indicates a very slow increase in capacity (Columns 2 and 3) that levels off and remains constant between 2003-04 and 2010-11[3]. The data in the inventory report make it clear that the University intends to add very little space for enrollment capacity over the next few years. Its capital outlay priorities at the moment appear to be directed more at seismic retrofits and the construction of scientific research facilities, than to increasing undergraduate capacity.

[3] Column B shows Weekly Student Contact Hours (WSCH) in classrooms and teaching laboratories. It represents the way capacity is measured under existing law, and can then be converted to full-time-equivalent students (FTES – Column C) by dividing WSCH by the contact hour load taken by the average student, which is currently 13.8.

Clearly, however, if the University is to accommodate the dramatic enrollment demand projected in this report, those priorities will have to change.

DISPLAY 4-6 Projected Capacity and Enrollment at the University of California, 1998-99 to 2010-11

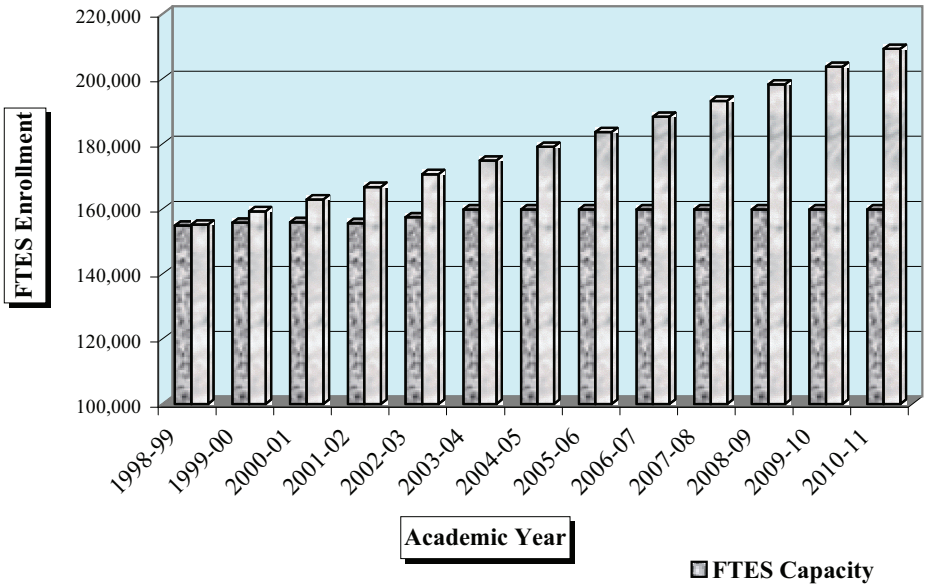
A	B	C	D	E	F	G
	Total Current Capacity		**Total Projected Load**		**Excess Capacity**	
Year	**Weekly Student Contact Hours[1]**	**Full-Time-Equivalent Students[2]**	**Weekly Student Contact Hours[3]**	**Full-Time-Equivalent Students[4]**	**WSCH**	**FTES**
1998-99	2,128,916	154,812	2,141,742	155,199	-12,826	-386
1999-00	2,141,970	155,717	2,197,102	159,210	-55,133	-3,493
2000-01	2,144,267	155,882	2,247,603	162,870	-103,337	-6,988
2001-02	2,140,667	155,602	2,300,269	166,686	-159,602	-11,084
2002-03	2,166,980	157,457	2,355,731	170,705	-188,752	-13,248
2003-04	2,200,779	159,878	2,412,514	174,820	-211,735	-14,942
2004-05	2,200,779	159,878	2,471,786	179,115	-271,007	-19,237
2005-06	2,200,779	159,878	2,533,484	183,586	-332,705	-23,708
2006-07	2,200,779	159,878	2,598,454	188,294	-397,675	-28,416
2007-08	2,200,779	159,878	2,665,950	193,185	-465,171	-33,306
2008-09	2,200,779	159,878	2,736,690	198,311	-535,911	-38,433
2009-10	2,200,779	159,878	2,810,457	203,656	-609,678	-43,778
2010-11	2,200,779	159,878	2,887,061	209,207	-686,282	-49,329

1. Weekly Student Contact Hour (WSCH) capacity derived from UC Space Analysis tables.
2. Weekly Student Contact Hours divided by the systemwide contact hours per FTE student (13.8).
3. WSCH derived by multiplying FTES by 13.8.
4. CPEC headcount projection adjusted for the past five-year average difference between Fall headcount and annualized FTES.

Source: UC 1999a, 1999b; CPEC staff analysis.

Display 4-6, which begins in 1998-99, a year later than the analysis the Commission undertook for UC Merced, indicates that the surplus of 2,277 FTES has already disappeared and brought the University to an approximate match between enrollments and available facilities. In subsequent years, if the projections hold, that situation can only worsen. Without dramatic changes, both in construction priorities and in the availability of funding, the University can expect a capacity deficit of almost 50,000 FTES by 2010 (Display 4-7).

DISPLAY 4-7 Projected Capacity and FTES Enrollment, University of California 1998-99 to 2010-11



Source: UC 1999b; CPEC Staff

If resources are provided, however, it is possible to see how most of the listed capacity shortfall could be ameliorated. For example, increase capacity at each of the existing general campuses by 600 FTES per year starting in 2002-03, up to each campus's planned maximum size as specified in its Long-Range Development Plan, and then adding additional capacity with the opening of UC Merced in the Fall of 2005[4] (Display 4-8). It is assumed that the Merced campus will begin with 1,000 FTES in 2005, then add 800 FTES per year to reach 5,000 FTES by 2010-11. Through such increases, the projected capacity deficit of 49,329 FTES in 2010-11 could be reduced to a more manageable, yet still large deficit of 20,778 FTES.

The Commission also assumes that none of these capacity increases can be created before 2002-03, given the long lead times for capital outlay projects. Even then, of course, any increase in capacity will be highly dependent on the availability of capital outlay funds. Since the current bond issue extends only through 2001-02, a new bond issue will have to be approved by the voters, probably in 2002, and possibly supplemented by lease-revenue bonds.

The only other option available to UC is to increase the efficiency of the existing system. If a way can be found to enhance the utilization of the existing physical plant, or to extend campuses' reach through the use of off-campus centers or technology, it may be possible to further reduce the capacity deficit. Such possibilities are being discussed in all three systems, and were men-

[4] The Governor's Proposed Budget for 2000-01 calls for opening the Merced campus a year early in 2004.

DISPLAY 4-8 Projected Capacity and Enrollment at the University of California, with Normal Growth to Current LRDP[1] Limits, Plus UC Merced 1998-99 to 2010-11

Year	Current/ Projected FTES Capacity	Current/ Projected FTES Load	Current/ Projected Excess FTES Capacity
1998-99	154,812	155,199	-386
1999-00	155,717	159,210	-3,493
2000-01	155,882	162,870	-6,988
2001-02	155,602	166,686	-11,084
2002-03	159,202	170,705	-11,503
2003-04	163,164	174,820	-11,656
2004-05	165,409	179,115	-13,706
2005-06	170,009	183,586	-13,577
2006-07	174,409	188,294	-13,885
2007-08	178,418	193,185	-14,767
2008-09	182,029	198,311	-16,282
2009-10	185,229	203,656	-18,427
2010-11	188,429	209,207	-20,778

1. Long-Range Development Plan

Source: UC 1999a, 1999b; CPEC staff analysis.

tioned directly by the University's President Richard Atkinson at a meeting of the Board of Regents in February (UC, 1999c). Although no specific proposals were presented for regental consideration and approval, several categories of ideas were offered, as shown in Display 4-9.

Five options are shown in this display, but none offers a panacea or something for nothing. There are no free, or even inexpensive, "fixes" that will provide instructional space for the students of Tidal Wave II. Whether the State chooses to build buildings, offer instruction through technology, extend schedules, divert students to less expensive programs, or some combination of all potential choices, every decision will involve costs. Some ideas, however, may be less expensive than others.

DISPLAY 4-9 Policy Changes Capable of Increasing Campus Capacity

Possible Change	Increased Headcount Enrollment
A. Increased use of off-campus centers	5,000
B. Use summer sessions more intensively	2,000
C. Expand the instructional day, week, and year	N/A
D. Re-evaluate LRDP[1] limitations	11,000[2]
E. UC Merced	5,000
Total (Headcount)	**23,000**
Total (Full-Time Equivalent Students)	**21,160[3]**

1. Long-Range Development Plan
2. UC estimate was 10,000 to 12,000 headcount students
3. FTES derived by applying most recent ratio of UC headcount to FTES.

Source: University of California, 1999c.

The first option involves the use of off-campus centers. Such facilities have been used with great effectiveness in both the California State University and the California Community Colleges, but never at the University of California. That now appears to be changing, as the University has proposed four centers to operate between Stockton and Bakersfield as satellites of the proposed UC Merced. In general, centers have been used to serve isolated populations of students, to handle overflow at impacted campuses, or for such special purposes as marine laboratories. They commonly are located in leased quarters or relocatable buildings that cost far less than on-campus buildings. Dr. Atkinson believes it might be possible to increase the University's capacity by up to 5,000 headcount students by utilizing off-campus centers.

Items B and C on the list are two variants on a theme. The first endeavors to extend summer sessions, while the second contemplates extending regular term schedules or even reinstituting year-round operations[5]. The University anticipates that it may be able to add 2,000 students by extending summer

[5] The University converted to year-round operations in the late 1960s, but abandoned State-supported summer quarters in the early 1970s due to recession-induced budget cuts.

sessions, but has no estimate at the present time for the additional enrollments that might be generated by "expanding the instructional day, week, or year." Such options will doubtless be analyzed and discussed with increasing frequency in the future, and they could have the effect of increasing capacity by enough to close most of the gap noted in Display 4-8. These options are not cost-free. Extending summer sessions, for example, may be feasible only if the State replaces the current fee-supported courses with State support. While such a policy would almost certainly attract more students, it could significantly increase support budget costs.

A full summer term might generate even greater enrollments in the same facilities, but it could run into its own form of "Catch-22," which works approximately as follows:

- If a University campus offers a full curriculum, but is able to attract only 40-50 percent of the enrollment of a regular term – in the 1960s, the University never offered a summer quarter with enrollment above 36 percent of the fall term – it is certain that average class sizes will fall below the overall yearly average, thereby reducing the student-faculty ratio and increasing the average cost per student.

- If, to counteract that problem, the University offers only popular courses, the student-faculty ratio will increase, creating a lower cost per student, but only at the price of a restricted curriculum. Such a restriction will give students fewer choices, so many who might like to attend will not be able to, since the courses they want will not be offered. Ultimately, this will cause total enrollment in the summer term to decrease, eliminating one of the primary objectives of year-round operation, a fully enrolled term with a full curriculum.

Clearly, the final result is a Hobson's Choice. The University can have a full schedule with no cost savings, or a restricted schedule with reduced enrollments, but it cannot have full enrollment and a full schedule unless students and faculty are willing to change current behavior, or unless the institution is willing to install major financial incentives, which would probably also have the effect of eliminating any possible savings. In the late 1960s and early 1970s, the net effect seemed to be the creation of a State-supported summer session to replace a student-supported summer session. When the first budget shortfall occurred in the early 1970s recession, the Governor and the Legislature came to the conclusion that such an arrangement was more than the State could afford in a fiscally restrictive climate. It therefore removed the funding for the University's summer quarter, with the result that UC returned to traditional summer sessions. Summer quarters have persisted at four State University campuses, but enrollments have remained at under 40 percent of fall term levels.

It may be said, "That was then and this is now," and the Commission agrees that ideas that have failed before should not be dismissed out of hand if it can be demonstrated that circumstances have changed. There may be very reasonable tradeoffs that should earnestly be considered, some of which may be

economically feasible. The Commission does suggest, however, that policy makers consider their options carefully, and not rush into a seemingly efficacious policy that turns out to be a worse solution than the problem which gave it life. To its credit, the University of California is currently engaged in such a study, which should produce recommendations in early 2000.

The fourth item on Dr. Atkinson's list was to re-evaluate LRDP limitations. This can certainly be done on those campuses with current enrollments and planning ceilings under the 28,000 to 30,000 limit that is generally thought to be reasonable for UC campuses. Again, however, raising the ceiling does not produce enrollment capacity at no cost; it just offers the opportunity to build additional buildings on existing campuses, potentially creating marginal savings from building entirely new campuses from the ground up.

Each of these options deserves serious and careful analyses, and doubtless will be discussed at length in the coming months. As noted elsewhere in this report, the growth challenge facing California higher education is so serious that all options will have to be considered.

The California State University

The California State University manages a total inventory of 27.8 million assignable square feet of space on 22 campuses, with the strong probability that CSU Channel Islands will achieve full college status at some point over the next few years to become the 23rd. The State of California is responsible for about 80 percent of the total, with the remainder consisting primarily of self-supporting facilities such as residence halls, some physical education facilities, and parking structures (Display 4-2).

As with the other two systems of public higher education, the analysis of physical capacity in the State University is complex. As noted earlier, current space standards only recognize classrooms and teaching laboratories as determinants of enrollment capacity, in spite of the fact that they represent only about a fourth of the on-campus space. In addition, some enrollments are generated in temporary facilities that are generally not counted as part of the regular or permanent inventory. Another category, and a growing one, is termed "Other Earned," and consists of contact hours and FTES that are generated outside of classrooms and laboratories, and may not be generated on the campus at all. These credits may consist of televised courses, individual study, teacher education field work, or even credits generated in self-instructional computer labs through the use of packaged, interactive computer programs. The final category is off-campus centers, some of which are owned by the system (e.g. Contra Costa, Stockton), but most of which are leased (e.g. San Francisco, Ventura, Palm Desert, Mission Viejo).

Display 4-10 shows the State University's permanent inventory as of the current year, 1999-00, and the two subsequent years that extend through the life of the currently authorized bond issue. This is a projection of course, but offers a reasonable comparison to the 1998-99 numbers that consisted of permanent capacity for 273,295 FTES students on campuses and permanent off-campus centers, plus another 19,553 FTES generated in the "Other Earned" category, for a total capacity of 292,848.

DISPLAY 4-10 Projected Full-Time-Equivalent Student Enrollment Capacity in the California State University (both funded and requested projects included), 1999-00 to 2001-02

Campus	1999-00			2000-01			2001-02		
	Permanent On-Campus Capacity	Other Earned Enroll.	Total Capacity	Permanent On-Campus Capacity	Other Earned Enroll.	Total Capacity	Permanent On-Campus Capacity	Other Earned Enroll.	Total Capacity
Bakersfield	4,558	272	4,830	4,558	340	4,898	5,525	408	5,933
Channel Islands	0	0	0	0	0	0	1,200	0	1,200
Chico	13,175	781	13,956	13,175	839	14,014	13,427	885	14,312
Dominguez Hills	6,950	1,395	8,345	6,950	1,448	8,398	6,950	1,538	8,488
Fresno	14,712	1,400	16,112	14,712	1,444	16,156	14,712	1,489	16,201
Fullerton	19,186	1,005	20,191	19,220	1,049	20,269	19,838	1,093	20,931
Hayward	11,989	612	12,601	12,002	643	12,645	12,016	675	12,691
Humboldt	6,494	968	7,462	6,494	982	7,476	6,960	995	7,955
Long Beach	23,881	919	24,800	23,881	945	24,826	23,881	974	24,855
Los Angeles	16,043	958	17,001	16,043	1,079	17,122	16,022	1,196	17,218
Maritime Acad.	532	54	586	532	64	596	532	67	599
Monterey Bay	2,385	124	2,509	2,385	159	2,544	2,385	193	2,578
Northridge	21,926	1,310	23,236	21,926	1,437	23,363	20,816	1,574	22,390
Pomona	13,206	655	13,861	13,206	697	13,903	13,206	755	13,961
Sacramento	19,221	1,600	20,821	20,548	1,631	22,179	20,548	1,666	22,214
San Bernardino	10,004	781	10,785	11,321	820	12,141	11,356	854	12,210
San Diego	24,767	1,663	26,430	25,059	1,758	26,817	25,929	1,782	27,711
San Francisco	18,096	2,175	20,271	18,101	2,347	20,448	18,111	2,532	20,643
San Jose	20,458	2,074	22,532	20,264	2,180	22,444	20,264	2,299	22,563
San Luis Obispo	15,079	825	15,904	15,079	988	16,067	15,170	989	16,159
San Marcos	2,328	198	2,526	3,577	215	3,792	3,577	235	3,812
Sonoma	5,368	647	6,015	5,368	664	6,032	6,524	687	7,211
Stanislaus	5,708	267	5,975	5,777	274	6,051	5,849	283	6,132
Totals	276,066	20,683	296,749	280,178	22,003	302,181	284,798	23,169	307,967

Source: California State University, 1999.

As noted above, the Commission has long been concerned about the higher education facilities/programs "Mismatch Problem." In *A Capacity for Growth* in 1995, the Commission adjusted in the technical capacity figures to reflect this mismatch, and consequently made a deduction of approximately 5.0 percent from the permanent capacity figures to reflect the more realistic inventory that was available for instructional purposes.

In this report, the Commission charged that adjustment to about half the 1995 level, primarily because the intense enrollment pressures pending higher education are likely to fill many of the gaps that formerly made it difficult or impossible to use facilities at maximum efficiency. While there will still be circumstances where large classrooms are underutilized and small classrooms oversubscribed, and others where entire campuses will not reach full capacity, the Commission believes that a small adjustment is warranted. Accordingly, the permanent capacity has been reduced by only 2.5 percent in this report (Display 4-11 and 4-12). The "Other Earned" category, which is growing rapidly, has not been adjusted, since it exists independent of classroom and teaching laboratory space.

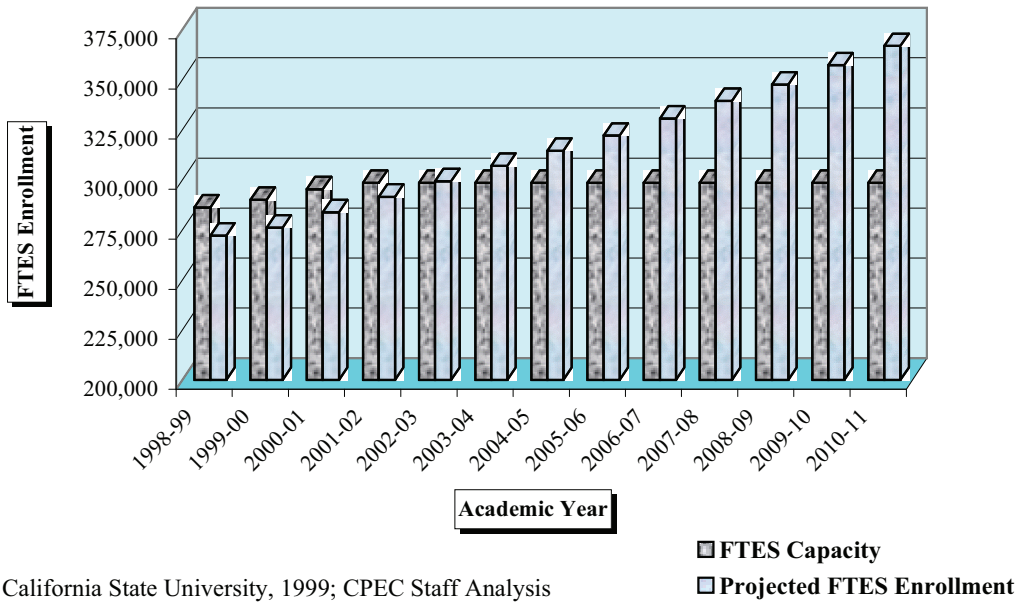
DISPLAY 4-11 Projected Enrollment Capacity in the California State University (Existing Inventory and Fully Funded Projects Only), 1998-99 to 2010-11

Year	Physical Capacity[1]	Projected FTES Enrollment[2]	Capacity Surplus or Deficiency	Percent Surplus or Deficiency
1998-99	286,182	272,200	13,982	5.1%
1999-00	290,016	276,135	13,880	5.0%
2000-01	295,347	283,853	11,494	4.0%
2001-02	298,390	291,564	6,827	2.3%
2002-03	298,390	299,354	-964	-0.3%
2003-04	298,390	306,939	-8,549	-2.8%
2004-05	298,390	314,502	-16,112	-5.1%
2005-06	298,390	322,075	-23,684	-7.4%
2006-07	298,390	330,658	-32,268	-9.8%
2007-08	298,390	339,290	-40,899	-12.1%
2008-09	298,390	347,674	-49,284	-14.2%
2009-10	298,390	357,191	-58,800	-16.5%
2010-11	298,390	366,807	-68,416	-18.7%

1. Permanent capacity reduced by 2.5% to reflect facility/program mismatches.
2. CPEC headcount enrollment projections adjusted by 76.5% to reflect FTES.

Source: California State University, 1999; CPEC Staff Analysis

DISPLAY 4-12 Projected Capacity and Enrollment in the California State University, 1998-99 to 2010-11



Source: California State University, 1999; CPEC Staff Analysis

The current CSU capacity is 286,182 FTES throughout the system, which increases to 298,390 by 2001-02 (Displays 4-11 and 4-12). That latter number represents not only current inventory, but also all projects that have been authorized and funded by the Governor and the Legislature, but not yet completed. From that date forward to 2010-11, it must be assumed that any additional inventory will come from new authorizations and funding, which are reflected in the cost estimates in Part Five of this report.

The State University has indicated on numerous occasions, however, that it intends to meet the demand. Chancellor Charles Reed has often indicated his belief that year-round operations, or some form of extended scheduling, may provide part of the answer. As noted in the previous section, the Commission believes this possibility should be very carefully explored, since it is likely that the availability of capital funding will not be sufficient to provide a complete solution to the "Tidal Wave II" dilemma.

As noted in the previous section, the State University is also advancing its ASF/FTE program and other initiatives to give campus planners sufficient flexibility to produce a slight increase in capacity, though probably not in regular classroom and laboratory instruction, since the space standards for those facilities already require very high utilization rates. In the "Other Earned" category, however, which includes credits earned outside of classrooms and labs, it is likely that enrollments will increase, which will have the effect of increasing total institutional capacity. To illustrate the point, the CSU database shows a 1999-00 total of 20,683 FTES generated outside of regular classroom and laboratory instruction (CSU, 1999). This is commendable, as it represents 7.1 percent of total capacity. In later years, however, the "Other Earned" FTES rises to over 30,000 FTES and 9.2 percent of total capacity.

There is finally the imponderable of technology. Some of the "Other Earned" FTES come from that source, mostly through television, and it is anticipated that the size of the category will increase dramatically in the coming years. It is interesting to note that, while on-campus "Other Earned" increases by only 12.6 percent between 1999 and 2006, the off-campus form of this category more than doubles from 5,589 to 12,243 FTES. By further extending usage of the Internet, it may be possible to increase that number even more.

California Community Colleges

Every year, each community college district submits a comprehensive five-year plan to the Board of Governors in Sacramento that contains a wealth of information about the physical plant of each of the 106 colleges in the system, plus numerous off-campus centers. In 1995, and again this year, the Commission examined those plans, as well as other documents supplied by the Chancellor's Office, to determine how much space is available to conduct the instructional program, and to determine future plans and the cost of those plans. In doing so, the Commission has been mindful of the restrictions imposed on the analysis by the existence of the current set of space and utilization standards. The Commission regards these – the classroom standards in particular – as outdated and in major need of revision. In the earlier report,

the Commission made major deductions in the system's presumed capacity in order to derive a figure that more accurately reflected actual capacity. At the time, when the data indicated depressed enrollments caused by recession-induced budget cuts, the space standards suggested a capacity surplus of about 123,900 FTE students. Because of the standards, and additional factors such as the mismatch problem discussed earlier, the Commission thought it proper to reduce the technical surplus to a true surplus of 82,500 FTES.

In the intervening years since the Commission published the *Capacity for Growth* report, a number of things have changed. Most important, the enrollment surge forecast by the Commission in 1995 has appeared on community college campuses, with students filling many of the underutilized facilities and spaces that existed at that time. This first stage of "Tidal Wave II" is now nearly complete, and it has prompted the Commission to make some adjustments in its analysis for the coming years.

The first adjustment is to reduce the technical surplus of 123,900 students reported in 1995 to 108,500 as of Fall 1998. In spite of this, however, the Commission believes that even this surplus is almost as unrealistic as the previous figure. As noted in 1995 in the discussion of the mismatch problem:

> In a system of 106 colleges serving a State population of over 30 million people, there will always be mismatches between population density and space availability. The district five-year plans make this abundantly clear, since the capacity-load ratios in some cases indicate that only half of the necessary space is available on a particular campus, while others have twice as much as the standards suggest is required. It is impossible to determine the true effect of this element of the "mismatch" phenomenon without a very comprehensive study, but it probably creates a reduction from perfect efficiency of at least a fourth of the 123,900 FTES surplus (CPEC, 1995b).

To deal with this problem today, the Commission has adopted a slightly different approach. Adjustments were made to the surplus capacity figure rather than to the entire physical plant, and, in this report, the Commission has analyzed total capacity and compared it to the projected enrollment levels expected to appear over the next 12 years. Determining that total capacity, of course, is the major challenge, one that involves a comprehensive understanding of space standards.

When the Commission published *A Capacity for Learning* (CPEC, 1990c), it recommended a major change in the classroom standard, in part because it was so demonstrably inconsistent with the way every other institution of higher education in the United States calculated capacity, and because it alone accounted for about three-fourths of the listed capacity of the average community college, a disproportionate weighting. Today, however, it appears that most institutions of higher education around the country are endeavoring to raise their utilization of classrooms and laboratories, and so it is probable that the major change of a 16.3 percent liberalization of the classroom standard recommended in 1990 should be adjusted to something less

dramatic in 1999. Here, the Commission has taken a conservative approach and adjusted the capacity calculation for classrooms downward by 5.0 percent, or a bit less than a third of the earlier recommendation. This is almost certainly less than warranted, but has the advantage of maintaining incentives to use facilities at their maximum possible rate, plus the additional advantage of modeling reality more closely than the standard itself. That change results in the comparison shown in Displays 4-13 and 4-14, with the Commission's enrollment projection added to show the need for additional capacity in the coming years.

DISPLAY 4-13 Comparison of Technical and Real Capacity in the California Community Colleges, with Projected Enrollments in FTES, 1998-99 to 2010-11

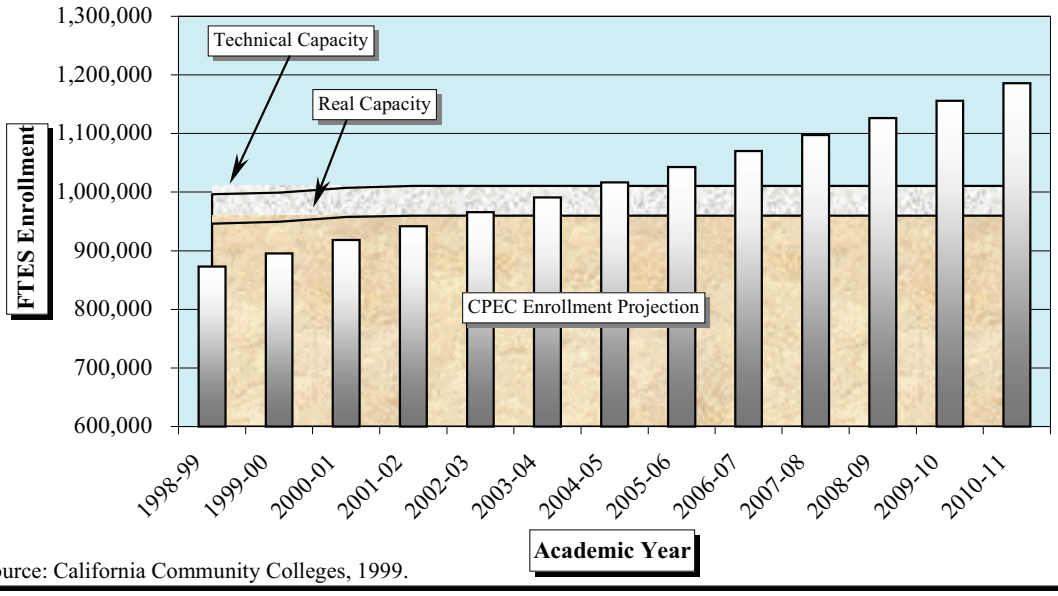
Year	Technical FTES Capacity	Real FTES Capacity	Projected FTES Enrollments	FTES Surplus or Deficit
1998-99	996,162	946,354	873,082	73,272
1999-00	999,099	949,144	895,319	53,825
2000-01	1,007,447	957,074	918,186	38,889
2001-02	1,010,148	959,641	941,702	17,938
2002-03	1,010,148	959,641	965,889	-6,249
2003-04	1,010,148	959,641	990,767	-31,126
2004-05	1,010,148	959,641	1,016,357	-56,717
2005-06	1,010,148	959,641	1,042,682	-83,041
2006-07	1,010,148	959,641	1,069,765	-110,124
2007-08	1,010,148	959,641	1,097,629	-137,988
2008-09	1,010,148	959,641	1,126,299	-166,658
2009-10	1,010,148	959,641	1,155,800	-196,159
2010-11	1,010,148	959,641	1,186,159	-226,518

Source: California CCCs, 1999; CPEC Staff Analysis.

As for the other systems, the inventory is held constant after all currently funded projects are included. The five-year plans include plans for many other facilities that will increase capacity further, but until those projects are funded, there is no reason to include them. They will be included, at least indirectly, in the cost projections in Part Five.

The community colleges have a current space surplus sufficient to enroll an additional 53,825 FTES in the current year. That number compares to the surplus of about 85,000 FTE students the Commission reported four years ago, and reflects both the strength of the current enrollment growth trend, and the fact that capital outlay continues to be underfunded. Within a few years,

DISPLAY 4-14 Comparison of Capacity and Enrollment in the California Community Colleges, 1998-99 to 2010-11



Source: California Community Colleges, 1999.

it is anticipated that this surplus will disappear altogether if further funding is not provided. In the longer-term years of the projection, after 2005-06, when growth accelerates to its maximum rate, the space deficiency will reach serious proportions. As the projection indicates, without new capacity space or other means of accommodating enrollments, the community college system will have a space deficit of over 83,000 FTES by the 2005-06 year, and a massive deficit of 226,518 FTES by 2010-11. The cost of reducing that deficit is discussed in the next chapter.

Independent and private degree-granting colleges and universities

In Part Three of this report, the Commission discussed the important role played by independent and private colleges and universities in California's higher education enterprise. It noted the sector's role in professional, graduate, and teacher education, and its diversity in both its academic programs and the ethnicity of its students.

For various reasons outlined in that chapter, it was not possible to generate an enrollment projection for the independent sector that would have the analytical substance and credibility of the public sector projections. Nevertheless, the Commission did endeavor to compile a reasonable estimate of the kind of growth that might be anticipated in the next 12 years (Display 3-41). That estimate indicated that it is reasonable to expect the independent colleges and universities to grow by between 75,000 and 130,000 students by 2010. Such growth suggests that the real impact of Tidal Wave II enrollment demand is closer to 800,000 headcount students than the 714,753 students that constitute the Commission's official public sector projection.

Such growth begs the question of the independent sector's capacity to accommodate its likely share of the enrollment surge. The Commission asked the Association of Independent California Colleges and Universities (AICCU) to survey its institutions for the purpose of determining how much additional capacity may actually exist. That survey indicated that the independent colleges grew by about 20,000 students between 1993 and 1998, with much greater growth projected to occur thereafter, assuming the flow of student financial aid continues. Presently, there appear to be some 23,000 unfilled spaces in this sector, with the expectation that another 12,300 spaces will become available by 2010. This suggests additional capacity among the independents for about 35,000 additional students during the 12-year projection period of this report. Such undergraduate capacity as does exist in independent colleges needs to be maintained.

It may be concluded that student financial aid is important both as a means of improving access to independent institutions, and an important public policy tool for keeping enrollment growth in the public institutions at manageable levels. Such aid may also encourage the independents to add additional physical capacity, thereby diminishing the chance of unanticipated impacts on public sector capacity. The Commission has asked AICCU to provide an estimate of where unused space may exist, and in what type of institution; many independent institutions are so specialized (e.g. theological institutions) that they would be unlikely to enroll students interested in general academic subjects. Such data may give policy makers a clearer idea of the degree to which independent institutions may be able to provide any relief from the enrollment burdens likely to face public institutions.

Using technology and telecommunications to enhance student access

The preceding analysis of enrollment demand and institutional capacity revealed that without building new facilities, or using existing ones more efficiently, California's public postsecondary enterprise will be unable to accommodate all of the more than 714,000 additional students expected to seek enrollment between now and year 2010. Given the estimated price tag of $1.5 billion per year to maintain and expand the existing physical plant to accommodate such growth, it is imperative that the Commission continue to explore and monitor appropriate arrangements and mechanisms that enable public colleges and universities to operate and deliver high-quality services and programs more cost-effectively, which in turn, can enhance student access.

Two recent Commission reports -- *Moving Forward: A Preliminary Discussion of Technology and Transformation in California Higher Education* (CPEC, 1996), and *Coming of Information Age in California Higher Education* (CPEC, 1997) -- summarized some of the major technology and telecommunications initiatives underway in California to improve student access and learning. A number of these are intended to support more productive arrangements that help students be more directed, focused, and proficient in acquiring and using knowledge while also allowing them greater control and flexibility in realizing their educational goals more rapidly. More specifically, higher education institutions have been engaged in:

- Upgrading inter/intra campus networks to enable classrooms, laboratories, libraries, and faculty and staff offices to be connected electronically using cost-effective networking protocols;
- Expanding distributed learning opportunities (e.g., Internet-based, CD ROM-based, Digital Cable) that maximize student choice by making learning less dependent on time and physical location;
- Improving teaching and learning through multimedia (e.g., animation, graphics, video, and sound) instructional materials that can improve high-level outcomes, such as problem solving, interpreting, synthesizing, and evaluating;
- Adapting technology-mediated instruction to better support the learning needs of students with varying learning styles and preferences or physically challenging disabilities;
- Enhancing access to online knowledge and information resources in a variety of media formats through the further development of digital library systems; and
- Increasing collaborative partnerships among higher education systems to improve efficiency and effectiveness in areas such as student services, human resources, and administrative functions.

Based on the high investment costs associated with such initiatives -- including ongoing costs related to technical training, computer and software upgrades, and administrative support -- the Commission believes that it is unlikely that higher education institutions will be able to reduce administrative and instructional costs in the near future through effective uses of technology.

What is possible, however, and what some institutions are beginning to demonstrate, is that technology can and should be used dynamically to improve the *cost-effectiveness* of key institutional operations related to educating an increasing number of new students. It should be emphasized that improving institutional cost-effectiveness is not necessarily the same as reducing costs (Bates, 2000). In other words, through careful and deliberate planning of the technology strategies documented above, it is possible that the *same* State dollar investment in higher education instruction can generate enhanced statewide outcomes related to student access and success. In a future technology study, the Commission intends to collaborate with both the public and independent higher education sectors to identify and clarify key performance indictors that can be used as a policy framework for monitoring progress in student outcomes associated with important facets of technology-mediated learning environments and arrangements.

5 Counting the Costs: Capital Outlay Estimates

Introduction

The enrollment surge projected in this report is impressive even for a state the size of California, and is an order of magnitude greater than the 1995 forecast contained in *A Capacity for Growth* (CPEC, 1995). Five years ago, the Commission projected 12-year growth in public sector enrollments of 455,190 headcount students; this report shows an increase over an identical period of time of 714,753, a number 57 percent greater than the original projection.

It is clear that California higher education does not have sufficient facilities to meet this coming demand, and that the cost of providing those facilities will be enormous by any historical standard. Among the three public systems, the University of California is already in a space deficit condition, and while the California State University and the California Community Colleges have some excess capacity, all that is currently available should be occupied in only a few short years. Further, while this "surplus" space has the effect of discounting the cost projections discussed below, much of the FTES capacity it creates may be illusory due to the "mismatch problem" discussed previously. In spite of this, the Commission has disregarded most of that difficulty and assumed that the technical surpluses are largely real (Display 5-1). To do otherwise would be to drive the capital outlay cost projections even higher than the remarkable levels they are already projected to reach. It might also reduce incentives to find ways to use the excess space more effectively.

DISPLAY 5-1 Comparison of Estimated Surpluses in "A Capacity for Growth" (1995) and "Riding the Tidal Wave" (1999)

	1995 Report		1999 Report	
Estimated Unused FTES Capacity	**1993-94**	**1994-95**	**1998-99**	**1999-00**
University of California	1,829	273	-386	-3,493
California State Univesity	10,103	11,894	13,982	13,880
California Community Colleges	82,500	84,600	73,272	53,825
Total Unused Capacity	**94,432**	**96,767**	**86,868**	**64,212**

Source: CPEC Staff Analysis

Usable or not, without substantial additional construction, all three systems will have inadequate space inventories by 2002-03 at precisely the time when the enrollment surge will be initiating a period of acceleration. This is a criti-

cal issue, since over half of the enrollment growth projected to occur in the 12-year forecast will appear between 2005 and 2010.

The Commission's 1995 cost analysis relied heavily on a 1990 report, *Higher Education at the Crossroads* (CPEC, 1990), as well as on the actual expenditures at the newest State University campus in San Marcos. For this report, however, the decision was made to seek a different approach, one that is more difficult to derive, but has the advantage of greater specificity. The 1995 report, using the Commission's baseline enrollment projection, projected that California would need to spend about $1 billion per year on a combination of new construction for enrollment growth, and the renovation or replacement of existing facilities. Of that, about 60 percent, or $600 million per year, was projected to be needed to maintain an existing physical plant of over 100 million assignable square feet. At a time when the State was spending only about $450 million per year for higher education capital outlay for all purposes, that projection was greeted with some dismay, yet it has been confirmed broadly by subsequent studies by the three public higher education systems, as well as the Department of Finance.

Looking ahead, it appears that most of the changes that have occurred since 1995 have militated in favor of even higher costs going forward, for the following reasons:

- Enrollment growth is projected to be even stronger, necessitating the construction of more facilities than before;
- Many years of deferred maintenance and inadequate capital outlay budgets have accelerated the deterioration of the existing physical plant;
- Legislation, such as the Americans with Disabilities Act, as well as numerous building code changes – particularly in the seismic area following the Northridge earthquake – that have all been designed to increase the health and safety of building occupants, have appeared since the 1995 report;
- The powerful economic boom has produced so much construction work throughout the State that a growing body of anecdotal evidence suggests that a significant rise in building costs has occurred; and
- The "Information Age," with the advent of the Internet and the revolution in computers and telecommunications, has hastened the technological obsolescence of many buildings, and encouraged planners and administrators to recommend projects, primarily in the renovation category, that will deal with that issue.

For this projection of capital outlay costs, one other assumption is important to mention. On the average, it can reasonably be assumed that the buildings and infrastructure in higher education's inventory have a useful life span of 40 years, after which they need to be renovated or replaced. Not all buildings wear out at even intervals and there are also booms and busts in capital programming that impact when real costs are likely to come due. For all three

systems, it is important to recognize that there were considerable building booms from the late 1940s through the mid-1960s, until the defeat of a major bond issue in 1968 marked the end of California's extraordinary post-war infrastructure expansion. The following decade and a half featured a construction drought and the "stagflation" era that started around 1970 and ended about 1984. A great many buildings built between 1948 and 1968 are today between 30 and 50 years old. By 2008, all of the buildings of that era will be in need of repair or replacement; many already are. This suggests the conservative assumption that about one-fortieth of the existing inventory needs to be replaced or overhauled in any given year.

Unfortunately, there is no detailed analysis available of the condition of higher education's physical plant. While local administrators and planners have a general idea of individual campus renovation or replacement needs, there is no systematic, statewide compilation that can inform the estimate in this report. Accordingly, the Commission has chosen to project replacement costs based on the one-fortieth principle -- through 2010-11 -- with the caveat that it probably represents only a floor of the actual need.

The cost estimates for the next 12 years are shown in Display 5-5. The derivation of those estimates – a few of which are significantly different from those contained in the 1995 analysis – is discussed below for each of the three public systems.

University of California

As stated before, the University of California maintains an inventory of 53.2 million assignable square feet (ASF), of which the State is responsible for about 33.5 million, or 63.0 percent. Using the one-fortieth principle, a total of 837,500 ASF per year of that inventory should be replaced or renovated .

As to the costs themselves, the Commission examined the University's most recent *Budget for Capital Improvements, 1999-2000* to develop an average cost model. That analysis included 36 projects scheduled over the next five years, including 23 that involved new construction and 13 for renovation. Additional projects not included in the analysis included hybrids of both renovation and new construction or building additions where costs could not be clearly identified.

Among new UC construction projects, costs varied widely, from as little as $375 per ASF to as high as $832 per ASF, with an average among those surveyed of $638. Renovation projects ranged from less than $100 per ASF to over $500, but tended to average $250 per ASF. These variations are due to a number of factors, including campus location (higher in urban areas), the type of facility (laboratories cost more than office buildings), construction type (major seismic upgrades in multi-story buildings are costly), or proximity to earthquake zones. After discussing these projections with UC officials, the Commission concluded that an average of over $630 per ASF for new construction was too high, and would be reduced by factors such as legislative scrutiny, construction management, scope changes, and competitive bidding. Accordingly, the Commission accepted a more modest average estimate of

$525 per ASF for new construction, with a renovation estimate of $240 per ASF.

The Commission has also assumed that about two-thirds of the projects designed to maintain the existing physical plant will involve lower-cost renovation and not new construction. As a result, maintenance of the existing plant is assumed to require an average expenditure of $340 per ASF (a hybrid figure that includes both new construction and renovation). Given the need to replace 837,000 ASF per year, the University should require $284.6 million per year.

This number is considerably higher than the 1995 estimate, when the Commission reluctantly accepted a rough estimate offered by the Office of the President of $150 million per year. Since then, many circumstances have changed, including the University's major effort to seismically retrofit many older buildings. In addition, the Commission has examined project costs more carefully, and made certain assumptions about renovation vs. replacement projects. Those changes have provided a more realistic estimate than the very rough numbers included in 1995, and produce the estimate of almost $300 million per year for replacement and renewal.

For growth, several assumptions are involved:

- The University will need to create space for 54,009 FTES, plus another 386 FTES (the current capacity deficit), for a total of 54,395 FTES;
- Of the total growth figure, 5,000 FTES will enroll at UC Merced by 2010;
- There will be no growth in the health sciences, which are held constant for the duration of this projection at 12,207 FTES;
- The cost of building UC Merced, through the final year of this projection, 2010-11, will be $400 million or $6,667 per FTES per year for the 12 years of the projection;
- New students will require 140 ASF per FTES. (The current UC inventory approximates about 185 ASF per FTE, however, the average space per FTES at the Davis, Irvine, Santa Barbara, and Santa Cruz campuses, according to the most recent University inventory, and excluding health sciences, is 145 ASF per FTES); and
- The cost for the remaining 49,395 FTES is projected to be $6,125 per FTES per year for the 12 years of the projection.

With these assumptions, the cost of serving the projected University of California enrollment growth is $333.5 million per year, including $33.3 million per year for UC Merced and $300.2 million per year for the eight other general campuses. There are no growth costs associated with UC San Francisco, as it is presumed not to grow for the length of the projection. Maintenance costs for that campus are included in the $284.6 million already noted.

With these assumptions and estimates, the UC total capital outlay need comes to $618.1 million per year or $7.4 billion for the 12 years of the projection, including the $400 million for UC Merced (Display 5-2).

DISPLAY 5-2 Cost Assumptions for the University of California Capital Outlay Estimate, 1998-99 to 2010-11

Item	To Maintain the Existing Physical Plant	To Provide for Enrollment Growth
Total Inventory	33,479,422	
Annual Replacement/Renovation (1/40)	836,986	
Estimated Cost per ASF	$340	
Estimated Annual Cost	*$284,575,087*	
Enrollment Growth, Except Merced		49,009
Excess Capacity		-386
Net Total Enrollment Growth		49,395
Needed ASF per FTES		140
Estimated Cost per ASF		$525
Estimated Annual Cost		*$300,180,125*
Total Enrollment, UC Merced		5,000
Estimated Total Cost		$400,000,000
Estimated Annual Cost		*$33,333,333*
Total Cost for Enrollment Growth		*$333,513,458*
Total Annual Cost	**$618,088,545**	

Source: CPEC staff analysis

California State University

Projected costs for the California State University are considerably less than in the University of California, for a number of reasons:

- The total inventory for which the State is responsible is currently about 22.3 million ASF, or 11.2 million less than at UC;
- CSU facilities are less expensive to build initially (renovation costs are similar);
- The State University has created a considerable amount of additional space by renovating existing facilities at Fort Ord and Camarillo State Hospital for the Monterey Bay and Channel Island campuses, respectively. (CSU Monterey Bay renovations have been done exclusively with federally provided funding.);

- The State University space surplus is sufficient to accommodate almost 14,000 FTES -- UC has a current deficit -- that is due in part to the implementation of an entirely new, and arguably more efficient space management system known as ASF/FTE; and
- Because there is no basic research function at the State University, it generally needs far less space per FTES (the UC average for the purposes of this projection is 140 ASF per FTES; it is only 75 in CSU).

For these reasons, and others detailed below, the State University's total annual need appears to be about $358.7 million (Display 5-3).

DISPLAY 5-3 Cost Assumptions for the California State University Capital Outlay Estimate, 1998-99 to 2010-11

Item	To Maintain the Existing Physical Plant	To Provide for Enrollment Growth
Total Inventory	22,313,220	
Annual Replacement/Renovation (1/40)	557,831	
Estimated Cost per ASF	$295	
Estimated Annual Cost	*$164,559,998*	
FTES Growth (25% of Monterey Bay/Channel Islands[1])		89,132
Excess Capacity		13,982
Net Total Enrollment Growth		75,150
Needed ASF per FTES		75
Estimated Cost per ASF		$390
Estimated Annual Cost		*183,178,125*
FTES Growth, Monterey Bay (75% of Total Growth)[2]		3,000
ASF/FTES to be Renovated		100
Estimated Cost/ASF for Renovation		*$240*
Annual Cost, Monterey Bay		*$6,000,000*
FTES Growth, Channel Islands (75% of Total Growth)[2]		2,475
ASF/FTES to be Renovated		100
Estimated Cost/ASF for Renovation		*$240*
Annual Cost, Channel Islands		*$4,950,000*
Total Cost for Enrollment Growth		*$194,128,125*
Total Annual Cost	**$358,688,123**	

1. For the Channel Islands and Monterey Bay campuses, it is assumed that three-fourths of the capital projects will involve renovations, with the remainder consisting of new construction.
2. The 3,000 FTES in growth represents three fourths of the 4,000 FTES total. The remainder is assumed to be accommodated through new construction.

Source: CPEC staff analysis

On the maintenance side of the equation, the costs in this report are considerably lower than in 1995, when the Commission assumed only a 30-year useful life span for existing buildings. That figure may have some merit, but has now been revised upward to 40 years to be consistent with the assumptions for the other two systems. That change, in concert with a closer study of actual construction and renovation costs, suggests that the State University's requirements to maintain the existing plant should now be set at about $165 million per year rather than the $250 million per year projected in 1995. That projection is based on a review of the State University's actual inventory and actual project costs, with the same assumption used for the other two systems that about one-fortieth of the inventory should be replaced every year (Display 5-3). Some two-thirds of the projects undertaken to maintain the existing physical plant will fall into the less expensive renovation category, the rest involve facility replacement. This assumption produces an average cost figure of $295 per assignable square foot.

For construction related to enrollment growth, the assumptions are divided into three categories: the Monterey Bay campus, the proposed Channel Islands campus, and all of the other space throughout the system. A unique model could be developed for each campus -- and in fact is developed as part of the annual budget process -- but, for this analysis, only two exceptions need to be made to the general rule, since both involve circumstances where CSU has assumed responsibility for existing structures where the primary need is for renovation.

Thus, where it is assumed that 100 percent of the expansion to accommodate enrollment growth on the 21 older campuses will be in new construction, it is assumed that only 25 percent of the expansion at Monterey Bay and Channel Islands will be new, with the remainder being continuing renovations. It is also assumed that, while the average ASF per FTES in the system is 75, the buildings at Fort Ord and the former Camarillo State Hospital facility are less space efficient than regular CSU structures. Accordingly, the Commission has added the assumption that 100 ASF will need to be renovated per FTE student at Camarillo and Monterey, rather than the normal 75. Overall, these assumptions permit a lower cost estimate moving forward for new capacity, which was the intention when the two facilities where acquired. At both institutions thus far, the capital costs have been negligible, and should remain the lowest cost element to provide for growth going forward. Specifically, the cost to add new FTES at these two locations is projected to cost $2,000 per student per year, compared to $2,438 at the other campuses. The overall cost for growth is projected to average just under $200 million per year.

California Community Colleges

The California Community Colleges are the largest of the three public systems and is projected to experience the largest numerical growth in students by a wide margin. Nearly three-fourths (528,918) of the total of 714,753 headcount students projected to be added to California higher education will attend classes on community college campuses, in the literally thousands of off-campus operations maintained throughout the State, or both.

Because the growth numbers are so much larger than in 1995, it is not be surprising that the new cost projection is equally daunting. In the *Capacity* report, the Commission determined that the community colleges had surplus capacity for about 82,500 FTE students, but that by 2005, and without new construction, that surplus would not only vanish, it would be replaced by a space need for 120,000 FTES. In the current report, the growth is stronger and the surplus more modest, so much so that it is now estimated that space will need to be found for 313,077 additional FTE community college students by 2010-11. The current surplus has been reduced to 73,272 FTES, leaving a need for new construction or other measures to increase capacity of 239,805.

The community colleges generally require much less space per FTES. The 1998 inventory suggests a ratio, based on 1998 Weekly Student Contact Hours, of 39 ASF per FTES. This number, however, included a slightly lower 1998 enrollment than later numbers now indicate to be warranted. The larger enrollment figure raises the average ASF per FTES to 41.1.

Further discussions with the Chancellor's Office suggest that the space being built now in the community college system should raise the average slightly. Current projects accommodate new health and safety code changes, as well as seismic and handicapped access. It is likely that some added space is also being constructed for technological improvements such as self-instructional computer laboratories and multi-media classrooms and teaching laboratories. Estimates are difficult, but the Commission believes that a small upward adjustment for these functions is minimally reasonable, and should bring the average for future construction to 42 ASF per FTE student.

For the cost per ASF element, the Commission reviewed basic information for over 200 currently underway or proposed projects. From that review, it was possible to derive average cost figures for community college projects, which average almost $370 per ASF for new construction and $213 for renovation.

Assuming various forces will reduce those numbers slightly as proposals become real projects, the Commission adopted $350 for new construction and $210 for renovation. These estimates are presented in Display 5-4, where the accommodation of enrollment growth is presumed to occur completely through new construction, the same assumption made for the other two systems with the exception of the special situations in Monterey Bay and Channel Islands. The growth figure is about triple the estimate offered in 1995 ($293.8 million vs. $105 million).

Given the enrollment projections, it should be expected that the estimate would more than double from that cause alone, but there are other factors as well, the largest of which is the cost per student change from 1995. At that time, the Chancellor's Office and the Commission used a different approach based on a more limited review that indicated a cost per FTES of about $10,000. The more comprehensive review of over 200 individual projects undertaken this year had the effect of raising that number to $14,700. Some of the difference is attributable to the limited nature of the earlier analysis,

DISPLAY 5-4 Cost Assumptions for the California Community Colleges Capital Outlay Estimate, 1998-99 to 2010-11

Item	To Maintain the Existing Physical Plant	To Provide for Enrollment Growth
Total Inventory	35,745,938	
Annual Replacement/Renovation (1/40)	893,648	
Estimated Cost per ASF	$260	
Estimated Annual Cost	*$232,348,597*	
FTES Growth		313,077
Excess Capacity		73,272
Net Total Enrollment Growth		239,805
Needed ASF per FTES		42
Estimated Cost per ASF		$350
Estimated Annual Cost		*$293,761,010*
Total Annual Cost	**$526,109,607**	

Source: CPEC staff analysis.

but most is probably due to real cost increases caused by the continuing economic boom, the greater emphasis on seismic strengthening, health and safety upgrades in building codes and in legislation, and the need for technological additions and enhancements.

There is considerable evidence suggesting that the community colleges underestimated their capital outlay needs in previous years. In 1987, the Chancellor's Office indicated that the system's total capital outlay need was $65 million per year (CPEC, 1987, p. 2). Other estimates of that time, although unpublished, placed the estimate at no more than $50 million per year. In 1990, the number increased to $212 million for all purposes (CPEC, 1992, p. 5), and then to $330 million in 1995. In spite of these estimates, total project requests were generally much higher – and growing as districts were encouraged by the passage of several bond issues – although the actual appropriations remained quite low. The Chancellor's Office indicates in general terms that it has a current project backlog of several billion dollars, although the specifics depend on many assumptions that are difficult to verify. However, the estimate of $526.1 million per year for all purposes seems more valid than any estimate produced previously. It is not a need, in all likelihood, for which the State will assume complete responsibility, but it does suggest a reasonable order of magnitude for the total that will need to be spent if the students of Tidal Wave II are to ride into an educated future.

Summary

There is a total capital outlay need of about $1.5 billion per year for public higher education (Display 5-5). Of this, about $681.5 million (45.3%) will be needed just to maintain that portion of the higher education complex for which the State is directly responsible. In addition, assuming various ways are not found to use facilities more efficiently than they are being used at present, and allowing for the excess capacity that currently exists at the State University and the community colleges, space will need to be constructed for

DISPLAY 5-5 A Summary of Annual Projected Capital Outlay Costs in California's Three Public Higher Education Systems, (Baseline Enrollment Projection)

System	Cost to Maintain Existing Physical Plant	Cost to Provide for Enrollment Growth	Total Annual Cost
University of California	$284,575,087	$333,513,458	$618,088,545
California State University	$164,559,998	$194,128,125	$358,688,123
California Community Colleges	$232,348,597	$293,761,010	$526,109,607
Totals	$681,483,682	$821,402,593	$1,502,886,275

Source: CPEC Staff Analysis

almost 600,000 additional headcount students at a cost of $821.4 million per year for each of the next 10 years.

California's government, through the bond authorization contained in Proposition 1A (1998), anticipates the expenditure of about $600 million per year for higher education facilities, or 40 percent of the need. This ratio is even worse than the 50 percent the Commission reported in 1995 as the probable share the State could afford for facilities. That new share, however, is largely dependent on the strength of the California economy and the revenue accruing to the State General Fund. That analysis is contained in the next part of this report.

6 "The Roaring 2000s": Economic and Fiscal Analysis

The difficulty of economic forecasting

The 1990s have been a difficult decade for professional economists. For several years, actual economic growth has exceeded their consensus projections by such a wide margin that they have often been criticized roundly, and occasionally even ridiculed. As Robert Kuttner observed:

> It's time to hold economists more accountable for their predictions . . . In recent decades, economists at both ends of the (political) spectrum, as well as those in the middle, have had one thing in common: Most have been profoundly wrong about the economy (Kuttner, 1999, p. 22).

Recently, the Congressional Budget Office (CBO) published a 20-year record of its own forecasts of United States Gross Domestic Product (GDP is composed of three elements: consumption, investment, and trade) together with that of the administration (White House), and those of a select group of "Blue Chip Forecasters." This record indicates that the forecasters were reasonably accurate -- to within half a percentage point -- only about half of the time and were often wrong by wide margins (Displays 6-1 and 6-2). In addition, they consistently underestimated the strength of the economy, particularly recently.

The UCLA Business Forecast is among the most respected in the nation. In 1994, UCLA was quite accurate, predicting a 3.3 percent growth rate that ultimately came in at 3.5 percent. In 1995, however, UCLA predicted 3.4 percent, but the economy only produced at 2.3 percent. In the next four years, UCLA joined a group of economists nationwide by severely understating growth by a full percentage point or more, a circumstance that is in no small way responsible for the kind of editorial comment offered above (Display 6-3).

In spite of the strong growth trend, the economic forecasts of most academic and governmental economists tend toward conservative; that may be because it is more enjoyable to report surpluses in the revisions than to announce deficits and probable budget cuts. Display 6-4 shows current forecasts from three sources: UCLA's annual business forecast from December 1998; the California Department of Finance (DOF), as developed for the 1999 May Revision to the State Budget; and the CBO, as published in July 1999. All three suggest national GDP rates in the range of 2.4 to 2.7 percent, when more recent rates in the second half of the 1990s have been very close to 4.0 percent. UCLA has, in fact, had second thoughts about its forecasts for the 1999 to 2001 period, and revised them upward:

Like almost every economist . . . UCLA forecasters have underestimated the resilience of the national economy, which has pushed into its eighth year of growth with few signs of slowing. California's economic expansion has the additional advantage of being about two years younger, because it sank further and emerged later from the nation's recession of 1990 and '91.

. . . (UCLA forecasters) are expecting the nation's inflation-adjusted GDP . . . to advance 3.5 percent this year. That is a percentage point higher than their previous forecast (LA Times, 1999).

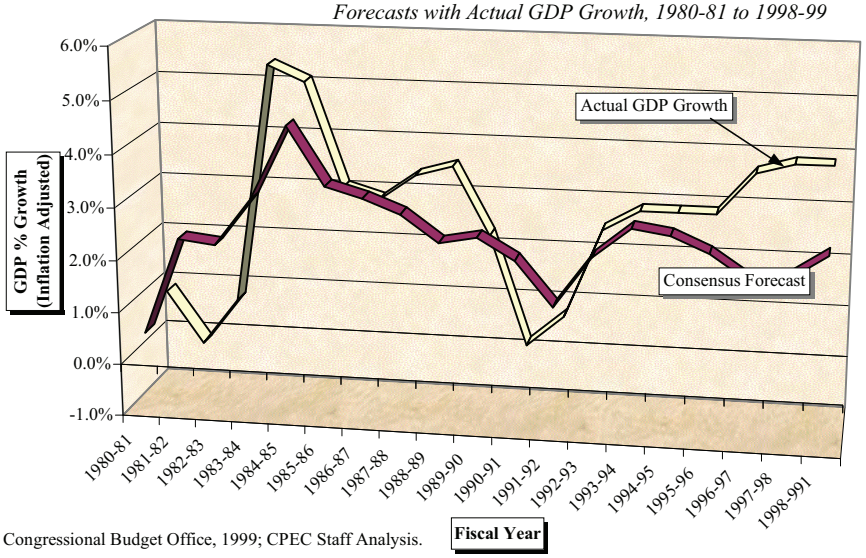
DISPLAY 6-1 Comparison of Forecast and Actual Changes in United States Gross Domestic Product, 1980-81 to 1998-99

Year	Real GDP Forecast (Inflation Adjusted)			Net Consensus	Actual	Percentage Error
	CBO	White House	Economists' Consensus			
1980-81	0.5%	0.5%	N/A	0.5%	0.9%	0.4%
1981-82	2.1%	2.6%	N/A	2.4%	-0.1%	-2.5%
1982-83	2.1%	2.7%	2.0%	2.3%	0.8%	-1.5%
1983-84	3.4%	2.6%	3.5%	3.2%	5.4%	2.2%
1984-85	4.7%	4.7%	4.3%	4.6%	5.1%	0.5%
1985-86	3.3%	3.9%	3.2%	3.5%	3.1%	-0.4%
1986-87	3.1%	3.7%	3.0%	3.3%	2.9%	-0.4%
1987-88	2.9%	3.3%	2.8%	3.0%	3.4%	0.4%
1988-89	2.4%	3.0%	2.1%	2.5%	3.6%	1.1%
1989-90	2.5%	3.2%	2.2%	2.6%	2.3%	-0.3%
1990-91	2.0%	2.8%	1.9%	2.2%	0.2%	-2.0%
1991-92	1.6%	1.4%	1.2%	1.4%	0.8%	-0.6%
1992-93	2.6%	2.2%	2.3%	2.4%	2.5%	0.1%
1993-94	2.9%	2.9%	3.0%	2.9%	2.9%	0.0%
1994-95	2.8%	2.9%	2.8%	2.8%	2.9%	0.1%
1995-96	2.4%	2.6%	2.6%	2.5%	2.9%	0.4%
1996-97	1.9%	2.2%	2.1%	2.1%	3.7%	1.6%
1997-98	2.1%	2.1%	2.2%	2.1%	3.9%	1.8%
1998-99[1]	N/A	N/A	2.6%	2.6%	3.9%	1.3%
Mean Error						**0.9%**

1. 1998-99 Economists' and Net Consensus Estimates are from the UCLA Business Forecast.

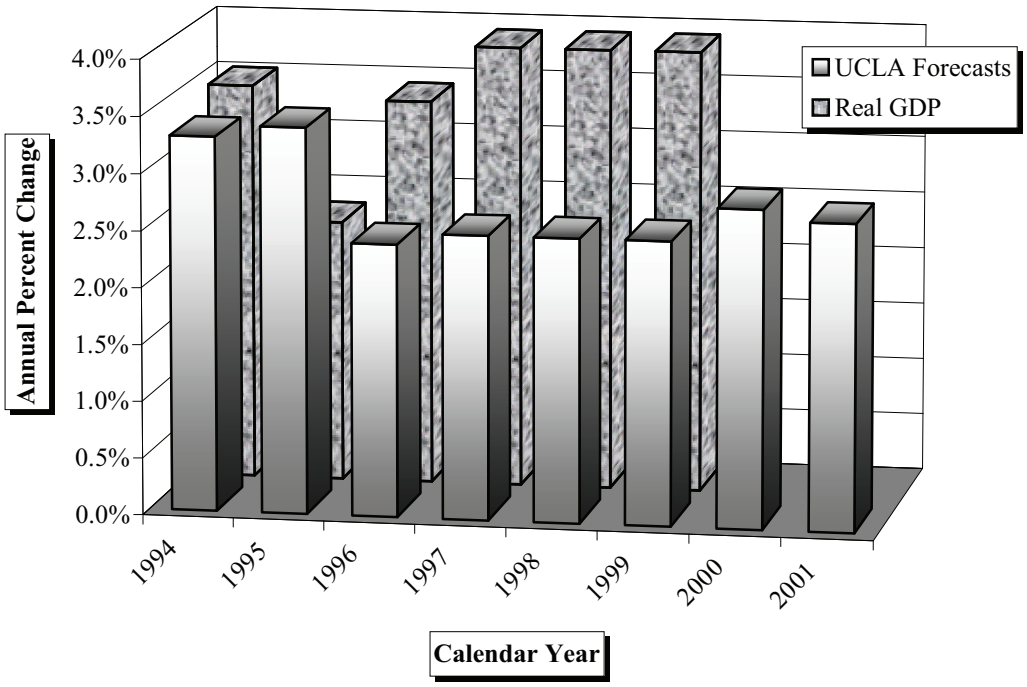
Source: Congressional Budget Office, 1999.

DISPLAY 6-2 Comparison of Gross Domestic Product (GDP) Forecasts with Actual GDP Growth, 1980-81 to 1998-99



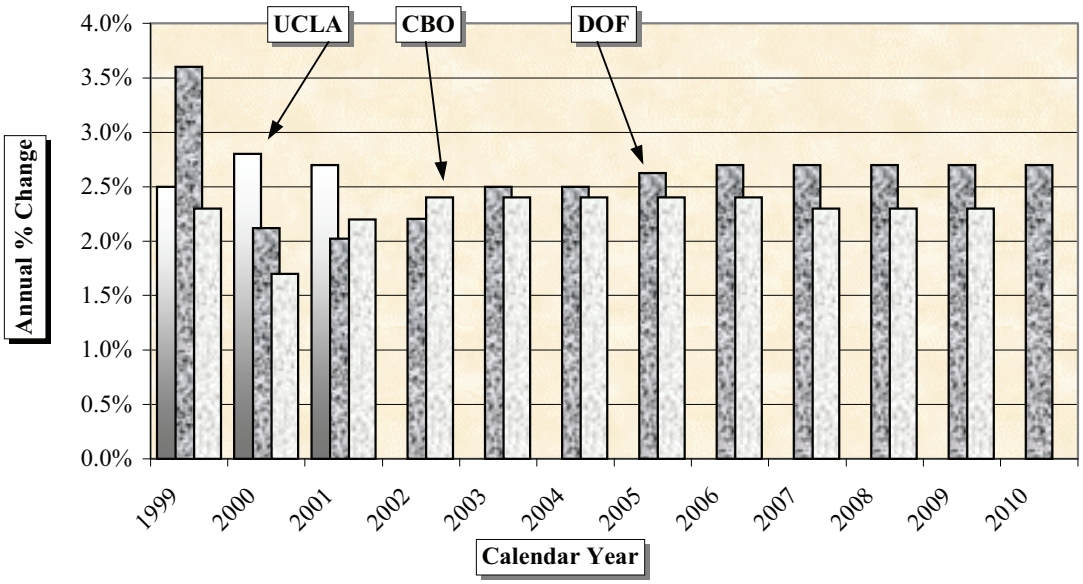
Source: Congressional Budget Office, 1999; CPEC Staff Analysis.

DISPLAY 6-3 Actual and Projected Real Growth in United States Gross Domestic Product, 1990 to 2001



Source: UCLA Anderson School, 1998; Congressional Budget Office, 1999; CPEC Staff Analysis.

DISPLAY 6-4 Forecasts of Annual Growth in Real Gross Domestic Product by the UCLA Anderson School, the Congressional Budget Office, and the State Department of Finance (Various Periods)



Source: UCLA Anderson School, 1998; Congressional Budget Office, 1999; Dept. of Finance, 1999.

Surveying the new economy

Not all economic observers, however, have underestimated the current strength of the American economy. Among those who think the recent good news will continue is Harry Dent, author of *The Great Boom Ahead* and *The Roaring 2000s*, from which the title of this chapter is borrowed, and one of the principal proponents of the so-called "new paradigm."

Writing in 1992, Dent's predictions for that decade were little short of extraordinary, predicting low inflation, and 3.5 to 4.0 percent real GDP growth through the 1990s. He also made several accurate predictions concerning commodities, technology, the stock market, and increasing federal revenues. Early in 1998, Mr. Dent published *The Roaring 2000s* with a refined analysis, for the succeeding 10-year period, predicting moderately strong economic growth through 2002, low-inflation, and even stronger growth and productivity into 2008. He cited the effects of the network revolution and the household-formation cycle of the next generation (Dent, 1998, p. 295).

Dent's views have gained adherents as the economy has continued to surprise on the upside. Among the best known are market strategists Abby Joseph Cohen of Goldman Sachs, Joe Battipaglia of Gruntal & Co., and Tom Galvin of Donaldson, Lufkin & Jenrette. They, along with Dent, attracted the attention of more mainstream publications. A 1999 editorial in *Business Week* entitled "The New Economy Finally Gets Some Respect" is representative:

> Conventional wisdom can be comforting, but it can be suffocating, too. For the past three decades, conventional wisdom has held that the U.S. economy could not grow faster than 2% to 2.5% a year without setting off inflation. This slow-growth view was institutionalized in Washington by the Federal Reserve, propagated in academia by economics departments, and evangelized on Wall Street by forecasters.
>
> In the past few months, a mass conversion has taken place, with economists and policymakers rejecting slow-growth economics for a New Economy paradigm . . . . If fresh economic thought requires a long journey of escape from conventional thinking, as John Maynard Keynes once observed, then America has just experienced a gigantic intellectual jailbreak (*Business Week*, 1999, p. 138).

In a 1999 speech to the Gerald R. Ford Foundation in Grand Rapids, Michigan, even Alan Greenspan, Chairman of the Federal Reserve, acknowledged what he referred to as "this country's rather impressive economic record." He testified then that the U.S. can safely grow at three percent annually over the long term. Along with others, Greenspan has noted that technology is among the primary reasons for this extraordinary surge in economic growth.

If Dent and others are right, it is probable that Gross Domestic Product will show annual gains, in real terms, of 3.5 to 4.0 percent for the next 8 to 10 years, and do so with only modest inflation in the range of 2.0 to 3.0 percent. Such gains would propel the GDP from its projected 1999 year-end total of $7.8 trillion to a 2008 total of $10.9 trillion, a 39.7 percent increase. This would compare to a current projection of $9.8 trillion given the current consensus long-range economic forecast of 2.5 percent annual growth. Over the nine years involved, a growth rate of 3.75 percent would produce over a trillion dollars more national wealth than a 2.5 percent rate. Such productivity would permit government to consider many choices from program enhancements to tax cuts, and would surely have an impact on both the nation and California that can barely be perceived today.

Probabilities and dangers

American economic history includes both periods of prosperity and times of retrenchment. It is known that the current growth era will end someday. Dent foresees that the next recession will occur primarily for two reasons: (1) the current demographic indicators will turn down; and (2) the productivity boom caused by technology will reach a state of maturity. The demographic problem will arise as the baby boomers retire and move past their prime spending years.

There is also a litany of other possible events that could influence and profoundly affect the nation's economic stability including war, natural disasters, and the unintended consequences of various political or economic policy decisions.

The Commission's view of the national economy is that the probability of strong growth through about 2008 is high, and should, therefore, form the baseline forecast. There is also a likelihood that the latter part of the next decade will see a falloff in growth, but not a severe recession. Based on this, the final three years of the economic/fiscal projection contained in this report show GDP and personal income growth receding from the high rates of the early decade, but probably still showing increases of 1.0 or 2.0 percent per year for GDP and personal income (inflation adjusted). That scenario is reflected in the California economic and General Fund forecasts that are discussed in the next section.

California economic and General Fund revenue forecasts

In 1995, the Commission determined that personal income serves as an effective proxy for economic growth and is useful in predicting the future course of the California economy. As personal income rises, more tax revenue is generated resulting in growth of the State's General Fund, the primary means by which State operations are funded. The Commission illustrated the relationship between personal income and General Fund growth, indicating that personal income generally grows at a rate faster than the General Fund, which suggests that the tax structure has the overall effect of shrinking State government revenues in relation to the economy as a whole.

The California State Treasurer's 1999 report, *Smart Investments*, dealt with many of the issues of concern to the Commission as it considers the long-range prospects for higher education spending (1999a). Much of the Treasurer's economic projections are based on the DOF projections for the 1999 May Revision to the State Budget (Display 6-5).

It seems likely that the DOF/Treasurer's baseline projection is too conservative, based as it is on the assumption that national Gross Domestic Product will not exceed 2.5 percent per year in real terms. This translates into personal income and General Fund growth figures for California that are almost indistinguishable from the Commission's reported 1995 growth rates. Such an approach, given the power of the current national economy, and California's strong participation in it, seems almost certain to understate probable economic growth and revenues, particularly because the California's primary boom years may be arriving only now. The growing economic recoveries in Japan and other Pacific Rim nations also offer great promise for California exporters, particularly in technology and agriculture, that should further enhance economic growth here.

To provide alternatives to his primary economic and fiscal forecast, the Treasurer added two more columns to his table. One constituted a low alternative that produced $10.3 billion less revenue in 2009-10 than the baseline of $103.9 billion, and the other a high alternative that produced $11.4 billion more in the same year (Treasurer, 1999, p. 34). Those options were derived by decreasing or increasing, respectively, the projected General Fund growth rate from the baseline by 1.0 percent, and showed a range in estimated revenues by 2009-10 from $93.6 billion to $115.3 billion.

DISPLAY 6-5 State Treasurer's Historical and Projected Demographic, Economic, and Fiscal Data, 1987-88 to 2010-11

Fiscal Year[1]	Population (000s)	Percent Change	Personal Income (000s)	Percent Change	General Fund (000s)	Percent Change
1987-88	28,393	N/A	$530,968,000	N/A	$33,041,398	N/A
1988-89	29,142	2.6%	590,962,575	11.3%	37,651,878	14.0%
1989-90	29,944	2.8%	639,298,496	8.2%	38,546,178	2.4%
1990-91	30,563	2.1%	653,173,910	2.2%	40,563,041	5.2%
1991-92	31,187	2.0%	684,675,848	4.8%	42,925,671	5.8%
1992-93	31,516	1.1%	697,942,194	1.9%	42,757,910	-0.4%
1993-94	31,791	0.9%	718,099,835	2.9%	40,527,732	-5.2%
1994-95	32,063	0.9%	754,269,373	5.0%	42,690,000	5.3%
1995-96	32,384	1.0%	798,019,676	5.8%	46,297,000	8.4%
1996-97	32,957	1.8%	846,017,338	6.0%	49,210,000	6.3%
1997-98	33,506	1.7%	901,981,738	6.6%	54,973,000	11.7%
1998-99	34,072	1.7%	$961,615,007	6.6%	$57,927,000	5.4%
1999-00	34,653	1.7%	1,013,393,082	5.4%	62,985,000	8.7%
2000-01	35,233	1.7%	1,060,910,669	4.7%	64,579,000	2.5%
2001-02	35,802	1.6%	1,117,751,612	5.4%	67,830,000	5.0%
2002-03	36,364	1.6%	1,186,809,309	6.2%	71,866,000	6.0%
2003-04	36,900	1.5%	1,260,094,876	6.2%	75,754,000	5.4%
2004-05	37,372	1.3%	1,338,102,084	6.2%	80,086,000	5.7%
2005-06	37,838	1.2%	1,421,700,798	6.2%	84,523,000	5.5%
2006-07	38,364	1.4%	1,510,832,550	6.3%	88,991,000	5.3%
2007-08	38,894	1.4%	1,606,101,512	6.3%	93,709,000	5.3%
2008-09	39,426	1.4%	1,707,728,584	6.3%	98,675,577	5.3%
2009-10	39,966	1.4%	1,815,802,326	6.3%	103,905,383	5.3%
2010-11	40,508	1.4%	1,930,197,872	6.3%	109,412,368	5.3%
Average Annual Growth, 1987-88 to 1998-99		**1.7%**		**5.5%**		**5.2%**
Average Annual Growth, 1998-99 to 2010-11		**1.5%**		**6.0%**		**5.4%**

1. All years are from Treasurer 1999 except 2010-11, which is a CPEC projection

Source: State Treasurer, 1999; CPEC 1999b; CPEC Staff Analysis for 2010-11.

The Commission's view of California's economic future centers on three fundamental assumptions:

- Regarding personal income, the Department of Finance has projected nominal (not adjusted for inflation) growth at about 6.2 to 6.3 percent per year, in current dollars, through 2009-10. Given that real GDP growth may exceed the modest 2.5 percent per year rate upon which DOF projec-

tions are based, the Commission believes it reasonable to increase the personal income growth rate to 7.0 percent per year through 2008, after which it is reduced to 6.0, 5.0, and then 4.0 percent to reflect the beginning of the demographic and consumer spending trough referred to in the previous section.

- It appears that the gap between personal income growth and General Fund growth has narrowed since the Commission's 1995 report. Based on that data, it was assumed that the General Fund would grow at a rate about 1.0 percent slower than personal income growth. The 1.0 percent gap that emerged from the data in 1995 may have been unduly affected by the extreme revenue shortfalls caused by the 1990 to 1994 recession. In the DOF/Treasurer data array, however, the gap appears to have narrowed to about 0.5 percent, which may reflect a more normal historical relationship. Accordingly, the Commission now estimates that the General Fund revenue growth rate will be 0.5 percent less per year than personal income growth. Annual General Fund growth is therefore projected to be about 6.5 percent for most of the years of the projection, falling to lower rates in 2008-09 and thereafter.

- It is assumed that there will be no increases or decreases in tax rates during the course of this projection.

These three assumptions underlie the data in Displays 6-6 and 6-7, which show projected General Fund revenue from all sources of $121.9 billion by 2010-11 with a range between $109.9 and $135.2 billion for that year. The high and the low are created using the same methodology employed by the State Treasurer, which was to add or subtract 1.0 percent from the General Fund growth rate each year.

General Fund spending assumptions

Display 6-8 shows actual General Fund expenditures from 1985-86 to 1997-98, the most current available estimates for 1998-99 and 1999-00, and projections thereafter through 2010-11. For the projections, the Commission has made a number of assumptions relative to the State's major spending categories. These include:

- *Health and Human Services:* In 1995, the Commission believed that welfare reform would be successful in reducing State costs, as would efforts to reduce medical costs and estimated annual growth in this category of 3.5 percent. That forecast was accurate: expenditures in this category increased by 3.6 percent in 1999-00 over 1998-99. The Commission now estimates growth through 2010 of 4.0 percent annually, which is a direct reflection of the estimated 1.5 percent per year population growth, plus 2.5 percent per year for inflation. Since caseloads continue to fall in a number of social service categories, it is probable that the welfare side of the equation may continue to grow modestly at less than 4.0 percent. However, given the likelihood that medical costs will grow at a rate faster than 4.0 percent for the duration of the estimate, it is reasonable to project

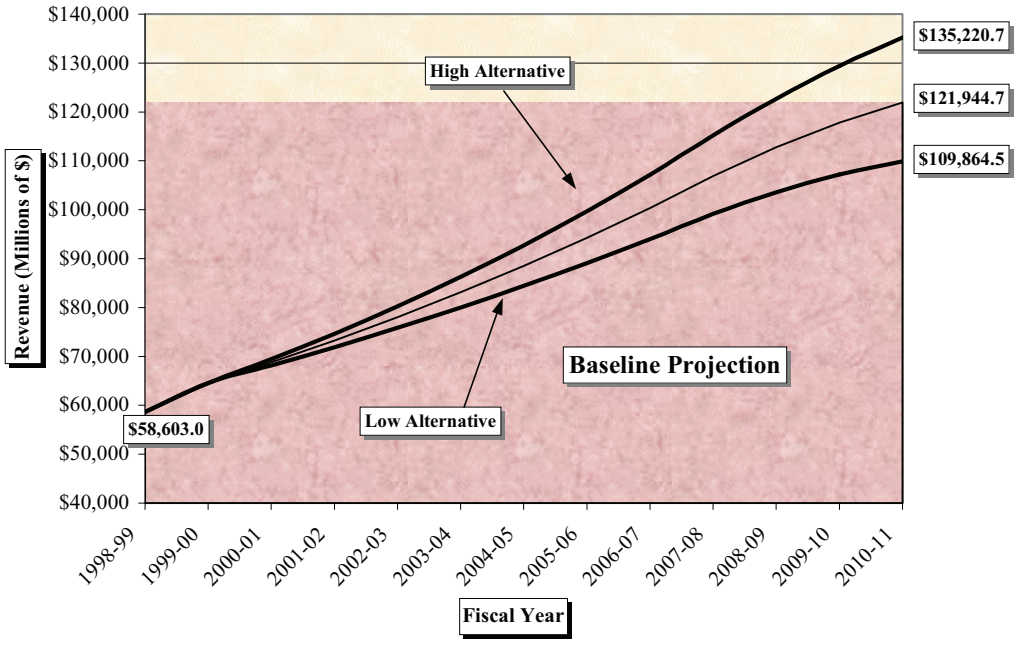
DISPLAY 6-6 CPEC General Fund Revenue Forecast, 1998-99 to 2010-11 (Millions)

Year	Personal Income	Percent Change	Baseline General Fund Revenue	Percent Change	Low Alternative	High Alternative
1998-99[1]	$961.6	6.60%	$58,603.0	6.60%	$58,603.0	$58,603.0
1999-00[1]	1,028.9	7.00%	64,573.9	10.19%	64,573.9	64,573.9
2000-01	1,100.9	7.00%	68,771.2	6.50%	68,125.5	69,417.0
2001-02	1,178.0	7.00%	73,241.4	6.50%	71,872.4	74,623.2
2002-03	1,260.5	7.00%	78,002.0	6.50%	75,825.4	80,220.0
2003-04	1,348.7	7.00%	83,072.2	6.50%	79,995.8	86,236.5
2004-05	1,443.1	7.00%	88,471.9	6.50%	84,395.5	92,704.2
2005-06	1,544.1	7.00%	94,222.5	6.50%	89,037.3	99,657.0
2006-07	1,652.2	7.00%	100,347.0	6.50%	93,934.3	107,131.3
2007-08	1,767.9	7.00%	106,869.6	6.50%	99,100.7	115,166.2
2008-09	1,873.9	6.00%	112,747.4	5.50%	103,560.3	122,652.0
2009-10	1,967.6	5.00%	117,821.0	4.50%	107,184.9	129,397.8
2010-11	2,046.3	4.00%	121,944.7	3.50%	109,864.5	135,220.7
Average Annual Change		**6.50%**		**6.30%**	**5.38%**	**7.22%**

1. 1998-99 and 1999-00 General Fund figures are current budget estimates.

Source: Department of Finance; State Treasurer; CPEC 1999b, Display 7; CPEC Staff Analysis.

DISPLAY 6-7 Projected General Fund Revenues, with High and Low Alternatives, 1998-99 to 2010-11 (Millions of $)



Source: Department of Finance; State Treasurer; CPEC Staff Analysis.

annual increases in Health and Human Services expenditures of 4.0 percent at least through 2007-08. In the final three years of the projection, however, when the economic downturn is expected, it is normal for health and welfare costs to increase as the unemployment rate rises. Display 6-8 consequently shows an increase in this category in the last three years.

DISPLAY 6-8 Actual and Projected General Fund Expenditures, 1998-99 to 2010-11

Year	Health and Human Services		Corrections		K-12 Education		Higher Education		All Other		Totals	
	Amount (000s)	Pct. Chg.	Amount (000s)	Pct. Chg.	Amount (000s)	Pct. Chg.	Amount (000s)	Pct. Chg.	Amount (000s)	Pct. Chg.	Amount (000s)	Pct. Chg.
1985-86	$8,642,978	14.5%	1,373,007	31.2%	11,072,393	11.4%	4,517,889	10.7%	3,168,339	2.2%	28,774,606	11.9%
1986-87	9,556,523	10.6%	1,645,352	19.8%	12,244,864	10.6%	4,785,018	5.9%	3,223,079	1.7%	31,454,836	9.3%
1987-88	10,379,328	8.6%	1,879,440	14.2%	12,632,358	3.2%	5,111,825	6.8%	3,266,167	1.3%	33,269,118	5.8%
1988-89	11,312,015	9.0%	2,026,807	7.8%	13,843,233	9.6%	5,417,106	6.0%	3,575,758	9.5%	36,174,919	8.7%
1989-90	12,478,312	10.3%	2,450,998	20.9%	14,681,692	6.1%	5,576,085	2.9%	4,219,149	18.0%	39,406,236	8.9%
1990-91	13,376,846	7.2%	2,666,939	8.8%	14,265,442	-2.8%	5,832,544	4.6%	3,929,490	-6.9%	40,071,261	1.7%
1991-92	13,680,048	2.3%	3,049,195	14.3%	16,416,016	15.1%	5,831,201	0.0%	4,326,899	10.1%	43,303,359	8.1%
1992-93	13,084,495	-4.4%	3,032,628	-0.5%	16,266,088	-0.9%	4,920,325	-15.6%	3,520,899	-18.6%	40,824,435	-5.7%
1993-94	13,282,325	1.5%	3,383,337	11.6%	14,480,796	-11.0%	4,680,629	-4.9%	3,128,835	-11.1%	38,955,922	-4.6%
1994-95	13,957,020	5.1%	3,624,756	7.1%	15,532,954	7.3%	5,102,161	9.0%	3,737,212	19.4%	41,954,103	7.7%
1995-96	14,263,715	2.2%	3,946,020	8.9%	17,790,572	14.5%	5,531,092	8.4%	3,861,692	3.3%	45,393,091	8.2%
1996-97	14,828,234	4.0%	3,799,023	-3.7%	19,893,422	11.8%	6,180,055	11.7%	4,325,297	12.0%	49,026,031	8.0%
1997-98	14,625,926	-1.4%	4,127,806	8.7%	22,080,127	11.0%	6,624,546	7.2%	5,326,195	23.1%	52,784,600	7.7%
1998-99	16,334,900	11.7%	4,556,542	10.4%	23,772,452	7.7%	7,438,091	12.3%	6,477,169	21.6%	58,579,154	11.0%
1999-00	16,920,262	3.6%	4,738,682	4.0%	26,418,191	11.1%	8,011,861	7.7%	7,643,005	18.0%	63,732,001	8.8%
2000-01	17,597,072	4.00%	4,999,310	5.50%	28,531,646	8.00%	8,512,602	6.25%	8,025,155	5.00%	67,665,786	6.17%
2001-02	18,300,955	4.00%	5,274,272	5.50%	30,814,178	8.00%	9,044,640	6.25%	8,426,413	5.00%	71,860,458	6.20%
2002-03	19,032,994	4.00%	5,564,356	5.50%	33,279,312	8.00%	9,609,930	6.25%	8,847,734	5.00%	76,334,326	6.23%
2003-04	19,794,313	4.00%	5,870,396	5.50%	35,941,657	8.00%	10,210,551	6.25%	9,290,120	5.00%	81,107,038	6.25%
2004-05	20,586,086	4.00%	6,193,268	5.50%	38,816,990	8.00%	10,848,710	6.25%	9,754,626	5.00%	86,199,680	6.28%
2005-06	21,409,529	4.00%	6,533,898	5.50%	41,922,349	8.00%	11,526,754	6.25%	10,242,358	5.00%	91,634,888	6.31%
2006-07	22,265,910	4.00%	6,893,262	5.50%	45,276,137	8.00%	12,247,177	6.25%	10,754,476	5.00%	97,436,961	6.33%
2007-08	23,156,547	4.00%	7,272,391	5.50%	48,898,228	8.00%	13,012,625	6.25%	11,292,199	5.00%	103,631,990	6.36%
2008-09	24,082,809	4.00%	7,708,735	6.00%	52,443,349	7.25%	13,760,851	5.75%	11,743,887	4.00%	109,739,631	5.89%
2009-10	25,046,121	4.00%	8,209,803	6.50%	55,852,167	6.50%	14,517,698	5.50%	12,096,204	3.00%	115,721,993	5.45%
2010-11	26,047,966	4.00%	8,784,489	7.00%	59,203,297	6.00%	15,243,583	5.00%	12,338,128	2.00%	121,617,463	5.09%

Source: CPEC, 1999b; CPEC Staff Analysis.

- *Youth and Adult Corrections:* In 1995, State prison populations were escalating rapidly. There were major funding increases in the 1980s, some as high as 20 to 30 percent in a single year, which led the Commission to then forecast double-digit growth in that spending category through 2005-06. Since then, the pressures in this budgetary category appear to have diminished and, since there is a known corollary between strong eco-

nomic growth and reduced crime rates, it now seems more likely that the Correction's budget will return to more normal growth rates over the next decade. Accordingly, the Commission has reduced the estimate in that category to 5.5 percent per year through 2007-08. After that, and in a pattern similar to the Health and Welfare category, Youth and Adult Correction spending should increase again (Display 6-8).

- *K-12 Education:* This is the largest General Fund spending category, one that is governed almost entirely by the intricacies of Proposition 98 with its three complex "tests" of fiscal support. Among these criteria, the most crucial, and most commonly applied, is Test 2, which gears support for the K-12 sector to a combination of growth in enrollments and California personal income, with General Fund support offset by property tax receipts. Because enrollment growth is a function of population and, when it is added to the Commission's projection of personal income, and property taxes estimates are included, it is possible to derive a growth rate that should reasonably approximate future State expenditure obligations. That rate through 2008 is estimated at 8.0 percent per year. In the last three years of the projection period, however, the rate is reduced somewhat to reflect the probable demographic and economic decline discussed earlier.

- *Higher Education:* The University of California and the California State University are currently discussing the possibility of establishing a partnership with Governor Davis. The first compact, with then Governor Wilson, guaranteed annual spending increases of 4.0 percent, but expired during the 1998-99 fiscal year. The new partnership, if one is developed, will almost certainly have to involve greater annual increases, if only for the reason that enrollment growth is accelerating. In this projection, the Commission is assuming an annual growth rate of 6.25 percent, which reflects a combination of the Commission's enrollment projection of 2.6 percent per year, and the Higher Education Price Index, which has averaged 3.65 percent per year over the past 10 years.

- *All Other State Spending:* Other categories of State spending include the Legislative, Judicial, and Executive; State and Consumer Services; Business, Transportation, and Housing; Resources; and General Government. Taken together, this is often the most volatile of any of the categories, often because of fund shifts, wide differences in obligatory payments such as to retirement programs, changes in debt service as bonds are sold or retired, and various special initiatives. For this projection, and with the understanding that the year-to-year projections will undoubtedly be quite volatile, the Commission has chosen an annual growth rate of 5.0 percent, which is merely keyed to a combination of 1.5 percent annual population growth, a projected annual Consumer Price Index change of 2.5 percent, and an additional 1.0 percent to reflect new programs that generally appear during eras of prosperity. This last category is expected to moderate or disappear when the economic boom ends late in the decade.

The Commission's revenue and expenditure projections suggest that the State of California will enjoy budget surpluses for every year of the projection through 2010-11 -- surpluses that should be as great or greater than the multi-billion surpluses reported in the past several years. It seems plausible that State budget surpluses could reach as high as $3 billion in the peak boom year of 2007-08, and then continue to nearly the break-even point between revenues and expenditures in 2010-11. Overall, the first decade of the 21st century could produce total State General Fund surpluses of $32 billion (Display 6-9).

DISPLAY 6-9 Comparison Between the Commission's Projections of General Fund Revenues and Expenditures, 1999-00 to 2010-11 (Millions)

Year	Projected General Fund Revenue	Projected General Fund Expenditures	Surplus/Deficit
1999-00	$64,573.9	$63,732.0	$842
2000-01	$68,771.2	$67,665.8	$1,105
2001-02	$73,241.4	$71,860.5	$1,381
2002-03	$78,002.0	$76,334.3	$1,668
2003-04	$83,072.2	$81,107.0	$1,965
2004-05	$88,471.9	$86,199.7	$2,272
2005-06	$94,222.5	$91,634.9	$2,588
2006-07	$100,347.0	$97,437.0	$2,910
2007-08	$106,869.6	$103,632.0	$3,238
2008-09	$112,747.4	$109,739.6	$3,008
2009-10	$117,821.0	$115,722.0	$2,099
2010-11	$121,944.7	$121,617.5	$327

Source: CPEC Staff Analysis.

For this report, data available from the Department of Finance is supportive of the Commission's optimistic prognosis for the California economy. Through the first half of the 1999-2000 fiscal year, General Fund revenues and transfers are growing at an annual rate of 11.2 percent, up for 6.7 percent in the prior year.

More reinforcement can be found in an Overview of the Governor's Budget released by Legislative Analyst Elizabeth Hill on January 14, 2000. The Analyst observed:

> The budget's forecast for both the nation and California has improved markedly since the 1999-00 budget was enacted last summer . . . . However, it does not fully reflect the extraordinarily positive revenue developments that occurred late last year . . . . Based on these recent positive trends, our initial estimate is that revenues will exceed the budget forecast by roughly $1.5 billion in both the current year and the budget year, for a two-year total of $3 billion. Our higher estimate assumes that California's economy avoids a serious slowdown over the next 18 months and that the stock marker avoids a steep and prolonged retrenchment . . . (Legislative Analyst, 2000).

Summary The Commission believes that its economic and fiscal analysis is modestly optimistic and, while it cannot be regarded as strictly conventional or the result of a broad consensus, there are cogent reasons to believe that it is realistic. With both the national and State economies enjoying a prosperity unknown since at least the 1950s and early 1960s – and perhaps not since the industrial revolution between 1880 and 1929 – and with clearly identifiable demographic and technological trends in place, there appears to be room to believe that the boom that began in 1982, and that showed only a slight interruption in 1987, and one recession in the early 1990s, will continue for years.

However, it would be a mistake to believe that such conditions are indifferent, or that the business cycle will not be at work. The current dramatic prosperity will end some day, possibly with a recession as severe as the one California experienced between 1990 and 1994. Thus, the current economic era is not really the product of the so-called "New Paradigm" as much as the result of the confluence of the fortuitous circumstances of demographics and technological productivity. In time, when those drivers have run their course, the economy will endure a correction of unknown severity.

Such an eventuality should in no way diminish the opportunity this moment represents. In the 1950s, during the last great economic upswing, California chose to create an infrastructure in education, transportation, and water that continues to well serve its people to the present day. In the 1990s, numerous bond issues have been passed that promise almost a repeat of that era of great building and expansion. In the 2000s, if the forecasts contained in this and other reports become reality, California will be presented with another great opportunity. The extent to which that opportunity may be realized is the subject of the next part of this report, which discusses California's prospects for new bond issues and debt financing.

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7 Room to Grow: An Analysis of Debt Capacity

Introduction Many have observed that education is any society's most important endeavor. In California, where over half of the State budget is allocated for its support, there is a powerful and highly resilient faith among citizens in virtually all circumstances that the future depends on the health of the educational enterprise.

That faith has been demonstrated repeatedly: in local elections for bond issues and tax overrides; and by statewide election outcomes on issues like Proposition 98 funding guarantee for the K-14 sector, and multi-billion bond issues for new schools, colleges, and universities. In the last three decades, bond issues have occasionally been defeated, primarily during recessions (November 1990) or times of general economic uncertainty (June 1994), but most have passed, often by large majorities. Most recently, in November 1998, the voters approved the $9.2 billion Proposition 1A by a 62.4 percent majority. A summary of all bond elections since 1972 is shown in Display 7-1.

DISPLAY 7-1 General Obligation Bond Issues Voted On by the California Electorate, 1972 to 1998

Election Month/Year	Purpose	Amount Approved (Millions)	Percent in Favor	Amount Disapproved (Millions)	Percent in Favor
November, 1972	Community Colleges	$160.0	56.9%		
November, 1972	UC Health Sciences	$155.9	60.0%		
June, 1976	Community Colleges			$150.0	43.9%
November, 1986	All Higher Education	$400.0	59.7%		
November, 1988	All Higher Education	$600.0	57.7%		
June, 1990	All Higher Education	$450.0	55.0%		
November, 1990	All Higher Education			$450.0	48.8%
June, 1992	All Higher Education	$900.0	50.8%		
June, 1994	All Higher Education			$900.0	47.2%
March, 1996	K-12/Higher Education[1]	$3,000.0	61.9%		
November, 1998	K-12/Higher Education[2]	$9,200.0	62.4%		

1. $2.1 Billion for K-12; $900 Million for Higher Education.
2. $6.7 Billion for K-12; $2.5 Billion for Higher Education, to be appropriated from 1998-99 to 2001-02.

Source: Department of Finance, 1999.

As California looks to its future, it is nearly certain that the electorate's faith in education at all levels will be tested more than once, for the needs projected in this report are significantly larger than the Commission estimated only a few years ago. Yet there is also reason to believe that economic growth will be strong enough to support a renewal and expansion of the educational infrastructure that will find a parallel only in the building boom that followed the conclusion of World War II. That boom lasted for over 20 years, between 1946 and 1968, and it seems likely that current needs will require an effort no less great.

In this chapter, the Commission examines California's debt capacity, and the prospects for passing future bond issues that will permit public higher education not only to maintain the quality of its existing physical plant, but to expand it to enroll the hundreds of thousands of new students who will desire educational services in the next decade and beyond. In doing so, the Commission is cognizant that debt financing is not the only answer to accommodating the enrollment surge. Other ideas such as greater facility utilization, technology and distance learning, year-round operations, shortening time to degree, and private fund raising have all been advanced, and each should receive earnest consideration. Doubtless, these ideas and others will have an impact on higher education's overall capacity to educate students, and some may ultimately have the effect of reducing the need for new facilities to a significant degree.

At the same time where new facilities need to be built, or existing infrastructure upgraded for added safety or to conform with modern technological standards, few should doubt that additional resources will be required, and that the primary source of funds available to State government will be General Obligation bonds, possibly supplemented by lease-revenue bonds. The projected General Fund surpluses make it tempting to consider some pay-as-you-go financing as well.

There is a logical argument for bond financing that has been persuasive for many years to a succession of governors, legislators, and voters. Since buildings last for an average of 40 years, it is unfair to ask the taxpayers of a single year to pay for buildings that may last for several generations. By spreading out the financing, far more of those who use the buildings will share in the cost of constructing and maintaining them. The converse argument is that California will continue to grow indefinitely, and since building costs will therefore occur every year for as far as anyone can see, it is well to avoid the interest costs by using current resources for capital outlay. Both arguments have merit and their respective proponents. However, the consensus view to date is that bonds are the best way to finance construction costs. Accordingly, the Commission believes it will be useful to provide an overview of California's ability to finance higher education's capital outlay needs in this way.

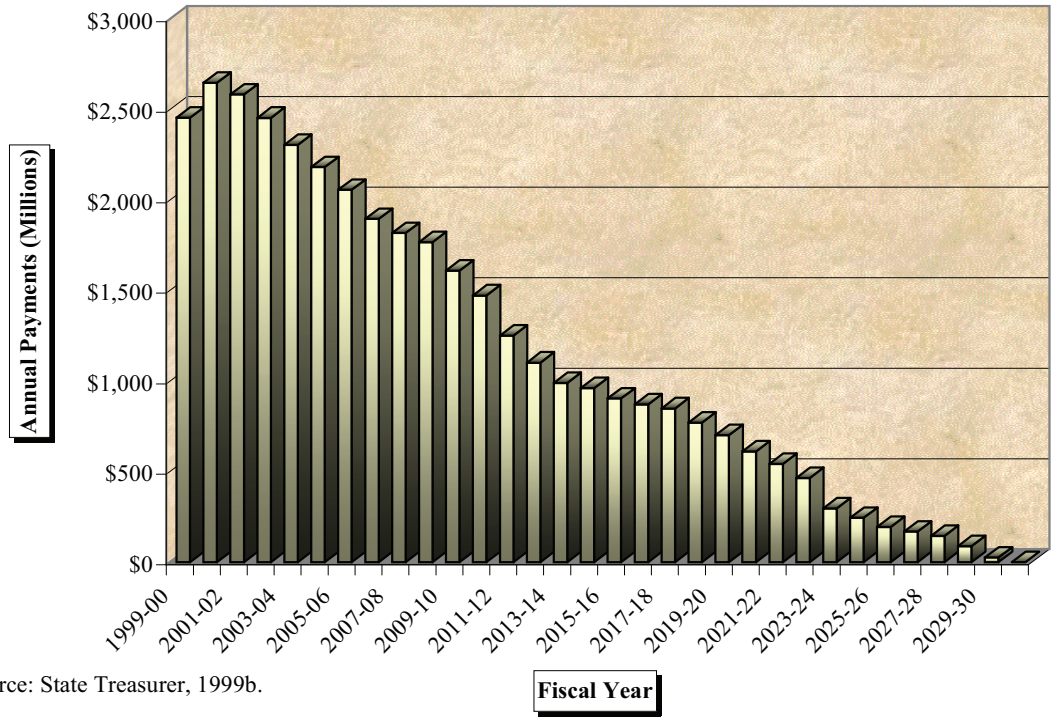
A report by the State Treasurer: *Smart Investments*

The State Treasurer is empowered by law to raise funds through the sale of bonds and other debt instruments, and to advise the Governor and the Legislature on the amount of debt the State can reasonably afford to issue. State Treasurer Philip Angelides issued a June 1999 report, *Smart Investments*, in which he offered a comprehensive assessment of both the State's infrastructure needs, and its ability to finance them. The report's cover letter offered a point of view with which the Commission is sympathetic:

> It is clear that California must plan now for the dramatic growth projected to occur in the years ahead and make the investments needed to accommodate that growth. The State's intelligent investment of its public resources in a manner that supports environmentally respectful, well-planned growth and promotes equality of opportunity is vital to our sustained economic progress. (Treasurer, 1999a, cover letter).

According to the Treasurer, as of August 1, 1999, California had outstanding General Obligation bonds – including scheduled interest payments – in the amount of $25 billion, with another $14.7 billion in voter authorized bonds that have not yet been sold. In addition, another $10.8 billion in lease revenue bonds remain outstanding, for a total of $35.8 billion in payments to be made over the next 30 years. To that, another $400 million in bonds sold on June 9, 1999, should be added to bring the outstanding total to $36.2 billion. The amortization schedules for the general obligation bonds, the lease-revenue bonds, and the June 9, 1999 bond sale are shown in Display 7-2 below.

DISPLAY 7-2 Amortization of Current State Debt (Total State Non-Self Liquidating Debt = $36.2 Billion of August 1, 1999)



Source: State Treasurer, 1999b.

The Treasurer's report makes an urgent plea for a comprehensive policy review of all capital outlay spending, one that will be driven by a true needs analysis and not just by funding availability. At the same time, he includes a number of tables and charts that indicate not only that California has considerable debt capacity, but that past capital spending has been far higher in relation to total State spending than it is today. As an example, he notes that, while annual capital spending in 1999 is projected to be just under 3.0 percent of the General Fund, it reached a high of almost 20 percent in 1967 before dropping precipitously in the subsequent 12 years.

As to current capacity, the Treasurer suggests that debt service payments of between $4 and $6 billion annually might be possible under current revenue projections without permitting such expenditures to exceed 6.0 percent of General Fund revenues, the limit most bond advisors list as the maximum allowable without negatively affecting interest rates. He wisely notes, however, that an increase in debt service payments from the current level of about 4.0 percent to a number between 5.0 and 6.0 percent could create an added expense to the General Fund of $1 billion or more, which exceeds the entire surplus in the current year's expenditure plan. As a result, he suggests that any increase in debt service from the current level should be undertaken gradually, if at all, and with very careful consideration of General Fund revenue projections.

The projections in the Treasurer's report are taken directly from the Department of Finance's revenue projections for the next 10 years -- projections the Commission believes are unduly conservative, as noted previously. His report does, however, offer alternatives that increase or decrease General Fund revenue by 1.0 percent per year over the 10 years of the projection, which produces a range of additional debt capacity of between $27.5 billion (low General Fund revenue estimate) to $38.0 billion (high General Fund revenue estimate). These figures compare to actual capital outlay spending in the 1999-00 year of about $2.1 billion. Therefore, under any scenario, it appears that additional spending is plausible.

The Treasurer's report concludes by arguing in favor of a constitutional amendment to reduce the current two-thirds majority for approval of local bond issues to a majority vote. Legislation to accomplish this purpose – Senate Constitutional Amendment No. 1 (O'Connell, et al) – will be considered by the Legislature during the 2000 legislative session for placement on the November 7, 2000 statewide election ballot. An initiative, Proposition 26, was on the March 2000 ballot and was defeated.

The Treasurer's argument in favor reducing the two-thirds majority requirement contains some interesting and relevant information concerning local bonding capacity, and the voters desire to use it:

> A full 83 percent of all local general obligation bond and special tax measures, and 98 percent of local *education* bond and special tax measures, would have passed in the November 1998 general election, had a majority, rather than a "super-majority" vote been re-

> quired. In comparison, only 43 percent of all local general obligation bonds and special tax measures, and 56 percent of local education bonds and special tax measures received the required two-thirds "super-majority" vote currently required. Indeed, in last November's general election, 27 measures received greater than 60 percent approval but still did not pass due to the two-thirds vote requirement.
>
> Since 1994, in six statewide primary or general elections, 71 local general obligation bond measures failed despite receiving greater than 50 percent approval. These electoral defeats represent up to $5.1 billion in foregone local bonding authority for schools, colleges, parks, open space, flood control systems, and other public facilities. (Treasurer, 1999a, p. 19)

The Commission now projects that California public higher education will need about $1.5 billion per year, in today's dollars, to meet all of its capital outlay needs. As will be seen in the next section, and confirmed by the Treasurer's report, it is unlikely that the State can meet all of those needs just through the sale of General Obligation bonds. A majority vote provision would open a major source of capital outlay funding for community colleges that is not currently available, and since support costs are shared between the State and local districts, it is within reason to believe that capital costs should be shared to a greater extent than they are at present. Approval of SCA 1 by the Legislature and the voters would make such a sharing of the burdens of growth more proportionate.

A projection of bonding capacity

To produce the analysis for this report, the Commission updated much of the data found in the Treasurer's June 1999 report, particularly regarding current debt levels (Display 7-3). In his report, the Treasurer estimated debt service at 4.17 percent of General Fund revenues. The Commission places the current debt load at 3.8 percent of projected 1999-00 revenues, principally because the Commission included some minor revenue and transfer payment sources that were not included in the Treasurer's report (CPEC, 1999b, Display 7). Going forward, this debt percentage will steadily decrease if no further bonds are sold and revenues continue to grow, falling to 2.18 percent of revenues in 2005-06 and then to 1.21 percent in the final year of the projection, 2010-11.

Additional bonds, however, will be sold, which creates the challenge of attempting to determine how much of the total capital outlay need can be financed by bonds. To make that determination, the Commission has created a projection that includes a number of assumptions (Display 7-5):

- Interest rates will remain at current levels.[1] Accordingly, the Commission has assumed that the amortization of all future bonds will match the

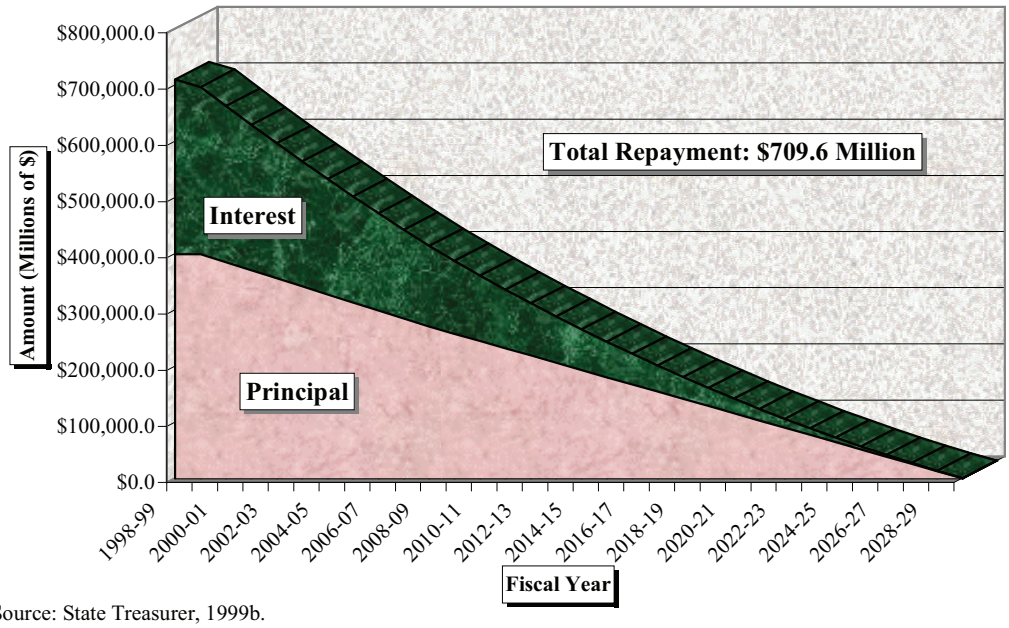
[1] Obviously, interest rates will fluctuate, but to derive this projection, stability must be assumed.

DISPLAY 7-3 California's Current Debt as a Percentage of General Fund Revenues, 1999-00 to 2010-11

Year	Projected General Fund Revenue (Millions)	Debt Service (Millions)	Debt as a Percent of GF Revenue
1999-00	$64,573.92	$2,455.85	3.80%
2000-01	68,771.22	2,648.12	3.85%
2001-02	73,241.35	2,583.59	3.53%
2002-03	78,002.04	2,455.16	3.15%
2003-04	83,072.17	2,305.04	2.77%
2004-05	88,471.87	2,182.39	2.47%
2005-06	94,222.54	2,057.83	2.18%
2006-07	100,347.00	1,896.77	1.89%
2007-08	106,869.56	1,819.17	1.70%
2008-09	112,747.38	1,767.37	1.57%
2009-10	117,821.01	1,611.13	1.37%
2010-11	121,944.75	1,474.34	1.21%

Source: Treasurer, 1999b; CPEC Staff Analysis

DISPLAY 7-4 Amortization of a $400 Million General Obligation Bond Issue, 1998-99 to 2029-30



Source: State Treasurer, 1999b.

amortization schedule of the general obligation bond sale described in the Treasurer's June 9, 1999 statement (Display 7-4).

- Between 1999-00 and 2010-11, General Fund revenue will be as projected by the Commission in Display 6-6. Between 2010-11 and 2015-16, nominal revenue will increase by only 3.0 percent per year, just slightly above the inflation rate. After 2015-16, General Fund revenue will increase by 5.5 percent per year through 2029-30, which is about the historical average.

- Display 7-5 presents simulations of various bond sale scenarios. Columns E, G, and I show debt service levels for bond sales between $4 and $6 billion per year, with each year adjusted for inflation at a 2.5 percent rate. In other words, it is assumed that a $5 billion bond sale in 1999-00 will require a sale of $5.125 billion the following year to achieve the same result. As another example, by 2010-11, it is assumed that the State will have to sell $6.6 billion in bonds to have the save effect as a $5 billion bond sale in the current year.

These assumptions produce an interesting result (Display 7-5). Currently, California is selling about $2 billion per year in bonds. Doubling that – and adjusted each year for inflation – will cause debt service to rise to no more than 4.7 percent of General Fund spending at any time over the next 30 years. If the amount is raised to $5 billion per year (and increased each year to account for inflation), debt service rises to 5.3 percent by 2010-11, then to 5.8 percent at its peak in 2015-16, and then declining thereafter (see the italicized Column H in Display 7-5). At the $6 billion level, debt service clearly rises above acceptable levels, to a potential high of almost 7.0 percent. Currently, only New York State has a higher debt service level (9.4 percent as of 1996-97 – Treasurer, 1999a, p. 28).

Many events could alter these numbers and the projections, therefore, will always be wrong to some degree. While there is need for constant updating and adjustment, there is also reason to believe that this simulation is a fair representation.

The Commission's 1995 long-range plan included a similar projection that suggested possible bond sales of $2 to $4 billion per year, with the Commission concluding that a maximum of $2.5 billion per year could be sold without damaging the State's fiscal integrity. California subsequently decided to raise a lesser amount through bond financing, while interest rates declined from those used for the 1995 projection. The result was a debt service rate of about 4.0 percent instead of the projected 6.1 percent, yet the fundamental assumption of the 1995 projection, that up to $2.5 billion per year could be sold, remains true.

DISPLAY 7-5 Simulation of General Fund Debt Service Payments Necessary to Amortize All Current Debt Plus $5, $6, or $7 Billion Annual Sales (Adjusted Annually for 2.5% Inflation)

A	B	C	D	E	F	G	H	I	J
Year	Projected General Fund Revenue[1] (Billions)	Debt Service on Sold Bonds (Billions)[1]	Debt as a Percent of GF Revenue	Debt Service on $4 Billion[2] Annual Sales (Billions)	Total Debt Service as a Percent of GF Revenue	Debt Service on $5 Billion[3] Annual Sales (Billions)	Total Debt Service as a Percent of GF Revenue	Debt Service on $6 Billion[4] Annual Sales (Billions)	Total Debt Service as a Percent of GF Revenue
1999-00	$64.6	$2.456	3.8%	$0.134	4.0%	$0.168	***4.1%***	$0.202	4.1%
2000-01	68.8	2.648	3.9%	0.480	4.5%	0.600	***4.7%***	0.720	4.9%
2001-02	73.2	2.584	3.5%	0.827	4.7%	1.034	***4.9%***	1.241	5.2%
2002-03	78.0	2.455	3.1%	1.177	4.7%	1.471	***5.0%***	1.765	5.4%
2003-04	83.1	2.305	2.8%	1.528	4.6%	1.910	***5.1%***	2.293	5.5%
2004-05	88.5	2.182	2.5%	1.882	4.6%	2.353	***5.1%***	2.823	5.7%
2005-06	94.2	2.058	2.2%	2.239	4.6%	2.798	***5.2%***	3.358	5.7%
2006-07	100.3	1.897	1.9%	2.597	4.5%	3.246	***5.1%***	3.895	5.8%
2007-08	106.9	1.819	1.7%	2.957	4.5%	3.696	***5.2%***	4.435	5.9%
2008-09	112.7	1.767	1.6%	3.320	4.5%	4.150	***5.2%***	4.980	6.0%
2009-10	117.8	1.611	1.4%	3.671	4.5%	4.588	***5.3%***	5.506	6.0%
2010-11	121.9	1.474	1.2%	4.023	4.5%	5.029	***5.3%***	6.034	6.2%
2011-12	125.6	1.252	1.0%	4.375	4.5%	5.469	***5.4%***	6.563	6.2%
2012-13	129.4	1.103	0.9%	4.727	4.5%	5.909	***5.4%***	7.091	6.3%
2013-14	133.3	0.991	0.7%	5.081	4.6%	6.351	***5.5%***	7.621	6.5%
2014-15	137.2	0.962	0.7%	5.437	4.7%	6.796	***5.7%***	8.155	6.6%
2015-16	141.4	0.904	0.6%	5.795	4.7%	7.244	***5.8%***	8.693	6.8%
2016-17	149.1	0.872	0.6%	6.156	4.7%	7.695	***5.7%***	9.234	6.8%
2017-18	157.3	0.850	0.5%	6.520	4.7%	8.150	***5.7%***	9.779	6.8%
2018-19	166.0	0.771	0.5%	6.886	4.6%	8.607	***5.6%***	10.329	6.7%
2019-20	175.1	0.703	0.4%	7.255	4.5%	9.068	***5.6%***	10.882	6.6%
2020-21	184.8	0.612	0.3%	7.626	4.5%	9.533	***5.5%***	11.439	6.5%
2021-22	194.9	0.544	0.3%	8.001	4.4%	10.001	***5.4%***	12.001	6.4%
2022-23	205.6	0.466	0.2%	8.378	4.3%	10.472	***5.3%***	12.567	6.3%
2023-24	217.0	0.297	0.1%	8.758	4.2%	10.948	***5.2%***	13.137	6.2%
2024-25	228.9	0.246	0.1%	9.142	4.1%	11.427	***5.1%***	13.712	6.1%
2025-26	241.5	0.195	0.1%	9.528	4.0%	11.910	***5.0%***	14.292	6.0%
2026-27	254.8	0.170	0.1%	9.918	4.0%	12.397	***4.9%***	14.877	5.9%
2027-28	268.8	0.145	0.1%	10.311	3.9%	12.889	***4.8%***	15.466	5.8%
2028-29	283.6	0.089	0.0%	10.707	3.8%	13.384	***4.8%***	16.061	5.7%
2029-30	299.1	0.026	0.0%	11.107	3.7%	13.884	***4.7%***	16.661	5.6%

1. After 2010-11, General Fund growth projected at 3% per year through 2015-16, then 5% thereafter.
2. Inflation adjustment raises bond sales from $4 billion to $8.4 billion by 2029-30.
3. Inflation adjustment raises bond sales from $5 billion to $10.5 billion by 2029-30.
4. Inflation adjustment raises bond sales from $6 billion to $12.6 billion by 2029-30.

Source: State Treasurer 1999b for current debt: CPEC Projection for all other.

Today, with an improved economy, and the prospects for continued strong economic growth, the $2.5 billion figure can quite easily be raised to a level of $4.5 to $5 billion per year in bond sales. Such an increase would, however, place added fiscal strains on the General Fund, since the additional sales would quickly add about $700 million in debt-service costs, rising to just over $1 billion in added costs by 2010. The Commission's expenditure projection suggests that, while such an increase is tolerable from a fiscal standpoint, it would almost certainly involve program sacrifices or foregone initiatives in other areas.

Higher education's share of capital spending

In 1995, the Commission included a display that indicated what various State agencies thought their five-year capital outlay spending needs would be, as reported in 1994 and 1995. That table indicated that total needs were $5.4 billion per year, excluding transportation; highway construction and related activities are supported almost entirely by federal funds and gasoline tax revenues. At the time, the three public systems of higher education projected their needs at about $1.3 billion per year, somewhat more than the Commission's own projection of just over $1 billion per year.

In this report, a similar table is included as Display 7-6, which also shows requested funds, but for a 10-year period as reported by the Department of Finance (Finance, 1999). The numbers are arrayed in a pie chart in Display 7-7. These displays show a number for higher education that is very similar to the 1995 figure, $13.7 billion for 10 years, or $1.4 billion per year compared to $1.3 billion in 1995. The Commission believes the actual figure is $1.5 billion, but it should be remembered that the agencies reporting these numbers to the Department of Finance did not have the benefit of the Commission's most recent enrollment projection. In addition, while 10-year projections tend to be relatively realistic for the first five years, they almost always underestimate the second five, since planning for specific projects cannot normally extend so far into the future. It is important to note also that these estimates have not been analyzed by the Department of Finance, but only passed through as received by the agencies in question.

An anomaly in the report is the greater share accorded to higher education than to K-12, 30.6 percent compared to 19.8 percent. This is the opposite of what would normally be expected, since Proposition 1A, the $9.2 billion bond issue approved by the voters in 1998, provided $6.7 billion to the K-12 sector, but only $2.5 billion for higher education. The answer to this rather counterintuitive result is threefold: (1) The display only indicates the need for State funds; (2) the Department of Finance indicates that the real need for State funds is not $8.9 billion but $14.1 billion, the difference coming in the form of bonds that were already authorized, but not yet sold; and (3) local school districts are required to match State funds 50-50, which moves the actual need higher still. In 1995, the total K-12 need was estimated at $2.2 billion per year in State funds, so it is probable that the real need is now closer to $2.5 billion compared to the $1.5 billion for higher education.

In 1995, the Commission reported that the Department of Corrections indicated an annual need for $1.4 billion, a figure that has been reduced in the current estimate to about $950 million. Other areas are also showing diminished need to the point where the current total State capital outlay projection is for about $4.5 billion per year, in comparison to the 1995 reported total of $5.4 billion. In part, the lower number can be attributed to an improving economy that resulted in the passage of many more local bond issues than in previous years, but also by the fact that State capital spending in the past four years in most areas has been higher than in the four-year period leading up to the 1995 report.

Based on the 1995 numbers, the Commission estimated that higher education could expect about a 20 percent share of the available funding, since its projections represented about 20 percent of the need. Based on that estimate, and the probability that the State could sell no more than $2.5 billion in bonds per year, the Commission concluded that the State could finance about half, or $500 million per year, of higher education's total capital outlay need of $1 billion per year. Since that report, a great deal has changed.

As noted, the current Department of Finance infrastructure report indicates that higher education represents 30.6 percent of the reported needs for State funds. In reality, once the adjustment for K-12 discussed above is included, the share is reduced to 27.4 percent. Then, when other considerations such as mass transit and water projects are added, which are under discussion but not included in the current report, higher education's real share probably returns to a level somewhere between 20 and 25 percent of total State needs. Given a reasonable maximum level of bond sales of $4.5 billion per year for at least the next 10 years, the total amount of capital outlay funding higher education might reasonably expect to receive from the State lies somewhere between $900 million and $1.2 billion per year. Such numbers represent a range of between 60 and 80 percent of the total need, a considerable improvement from 1995 when the Commission saw a way to meet only half the need, and an even more remarkable number given the fact that higher education's needs have increased by 50 percent during that same period of time. It is a welcome result of both the nation's and California's vibrant and resilient economy.

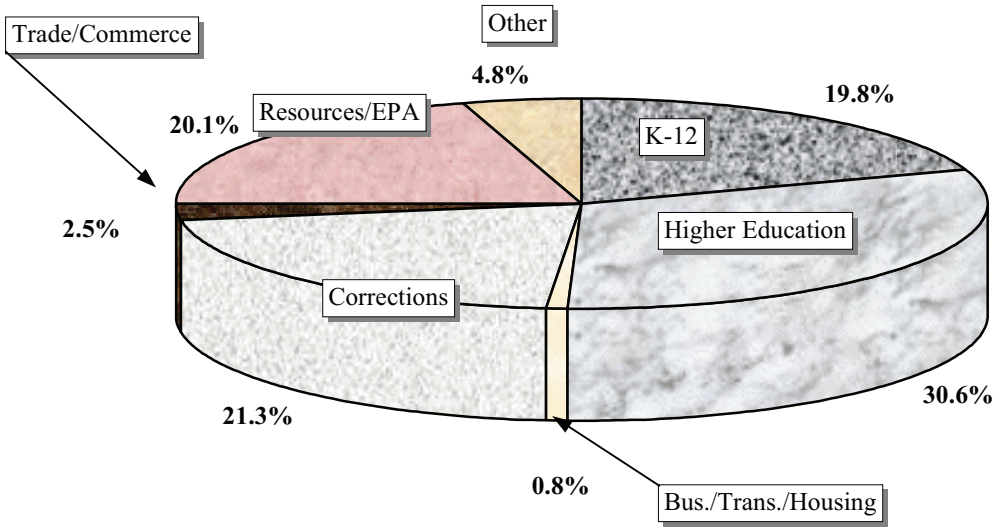
DISPLAY 7-6 Ten-Year Capital Outlay Needs as Identified by Various State Agencies, 1999-00 to 2008-09

Agency	Amount (Millions of $)	Percent of Total
K-12 Education	**$8,856.7**	**19.8%**
K-12	$8,744.6	19.6%
State Special Schools	$96.3	0.2%
State Library	$15.8	0.0%
Higher Education	**$13,678.5**	**30.6%**
University of California	$4,703.1	10.5%
California State University	$4,264.9	9.6%
California Community Colleges	$4,703.3	10.5%
Hastings College of Law	$7.2	0.0%
Youth and Adult Corrections	**$9,486.1**	**21.3%**
Department of Corrections	$5,538.3	12.4%
Youth Authority	$577.0	1.3%
Board of Corrections	$3,370.8	7.6%
Bus., Trans., and Housing	**$371.2**	**0.8%**
CalTrans[1]	$0.0	0.0%
Housing/Comm. Development	$30.1	0.1%
Calif. Highway Patrol	$107.8	0.2%
Dept. of Motor Vehicles	$190.3	0.4%
Teale Data Center	$43.0	0.1%
Trade and Commerce Agency	**$1,100.0**	**2.5%**
Natural Resources/EPA[2]	**$8,980.6**	**20.1%**
Water Resources	$2,802.7	6.3%
Parks and Recreation	$1,952.6	4.4%
All other	$4,225.3	9.5%
Other Govt. Infrastructure	**$2,161.7**	**4.8%**
Dept. of Mental Health	$459.3	1.0%
Dept. of General Services	$862.4	1.9%
Military Department	$407.4	0.9%
All Other	$432.6	1.0%
Grand Total	**$44,634.8**	**100.0%**

1. CalTrans estimates its needs at $27.2 billion over ten years, which is offset by an estimated $27.6 billion in non-bond revenues ($11.5 billion from motor vehicle taxes and weight fees, and $15.7 billion in Federal Highway Trust Funds)
2. Environmental Protection Agency

Source: Department of Finance, 1999.

DISPLAY 7-7 Ten-Year Projected Shares of Capital Outlay Spending as Reported by the Department of Finance, 1999-00 to 2008-09



Source: Department of Finance, 1999.

Appendix A Acknowledgements and Long-Range Planning Advisory Committee

The contents, findings, and conclusions contained in this report are solely the responsibility of the Commission and its staff, but the report has benefited from the assistance of many people. To produce it, a Long-Range Planning Advisory Committee was formed that consisted of representatives from the University of California, the California State University, the California Community Colleges, the Association of Independent California Colleges and Universities (AICCU), the Department of Finance, and the Office of the Legislative Analyst. All of the members of this committee are listed below, and the Commission extends its gratitude to each and every member of the committee for their willingness to take time from their busy schedules to act as advisors to this effort.

Some, of course, invariably become more instrumental than others in the success of any effort, and for that reason, the Commission would like to extend special thanks to several individuals. From the Department of Finance, Carol Corcoran from the Demographic Research Unit offered volumes of data and the considerable benefits of her experience and enthusiasm for the subject. Suzanne Bost, Principal Analyst in the Department of Finance's Capital Outlay Unit provided invaluable insights and information, and posed any number of difficult questions that challenged both the Commission and the institutional representatives. Erik Skinner from the Legislative Analyst's Office was always available to provide data and a valuable point of view.

From the University of California, the Commission is grateful to Sandra Smith, Meredith Michaels, Debora Obley, and Carol Copperud, all of whom participated in the deliberations, and helped refine many of the enrollment and facility assumptions in the report.

Patrick Drohan, Assistant Vice Chancellor for Capital Planning at the California State University, and Jon Regnier, his predecessor in the position, provided their comprehensive knowledge and wisdom on all matters relating to campus planning. Their long and difficult endeavors to create a new way to use space and utilization guidelines that will be better adapted to the Information Age offered the Commission a point of view that greatly aided the current effort, and that will doubtless serve California for many years to come. In addition, this report, and the 1995 Commission report *A Capacity for Growth*, would not have been possible without the creativity and knowledge of Dr. Philip Garcia, then Deputy Director of the Analytic Studies Division in the Chancellor's Office. Dr. Garcia's work to create a computer model to measure student persistence became one of the most important tools the Commission used to produce the enrollment projections in both the

current and 1995 reports. For his great efforts, and consistent cooperation with the authors of this report, the Commission extends its heartfelt thanks.

At the Community Colleges, the Commission is indebted to Chuck McIntyre, Director of Planning and Research, for his early inputs to the Commission's enrollment analysis; to Fred Harris, Director of Facilities Planning and Utilization, for his consistent cooperation and willingness to secure a complete set of community college district five-year capital outlay plans for Commission use, to Walt Reno for his help in answering numerous questions, and to Dale Clevenger for his work on community college inventory compilation. Thanks are also due to Dianne G. VanHook, Superintendent/President of the Santa Clarita Community College District for her willingness to travel to Sacramento for the advisory committee meetings, and her additional willingness to offer her insights on the joys and burdens of managing a highly successful community college district.

The Commission also wishes to thank Juan Yniguez, Vice President of AICCU, who surveyed the independent institutions to determine their current enrollment capacity, growth prospects, and ability to enroll additional students over the next few years. His presentation of the results of this effort to the advisory committee was a highlight of the effort, and informed the work contained in this report.

Finally, the authors of this report, William L. Storey, Stacy Wilson, Beth Graybill and Kevin Woolfork, wish to express their personal appreciation to the many members of the Commission staff who participated as advisers, editors, data gatherers, compilers, and formatters. These include Charles A. Ratliff, David E. Leveille, Cheryl Hickey, Daniel L. Parker, and Kimberly Crittenden. The staff is also deeply appreciative of the strong and enthusiastic support it has received from start to finish from Executive Director Warren H. Fox. The first report in 1995, *A Capacity for Growth*, had its genesis in his idea that a comprehensive long-range planning framework was essential to guide California higher education's future development, and it has carried through to the present effort. Without his vision, this effort would not have occurred at all.

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Appendix B The Function and Purpose of Long-Range Planning

In its 1995 planning report, the Commission included a section it termed "The function and purpose of long-range planning." Since the Commission had never previously discussed its vision of the subject, the narrative attracted some interest and discussion, so much so that it now seems prudent some four years later to repeat most of it here, not only because it relates so closely to the contents of this report, but also because it describes succinctly one of the Commission's primary responsibilities.

> Planning has sometimes been regarded as no more than a common-sense approach for organizing data and information, financial resources, human expertise, and the various structures of large organizations. Within the fiscal or economic arena, planning has been seen as a way to predict the future based on past trends and a set of assumptions about future events. Many see it as an activity one does occasionally, perhaps every five or 10 years or longer. For example, the *Master Plan for Higher Education in California, 1960 to 1975*, is often viewed as the product of a planning effort that has stood the test of time and that is as valid today as it was some 35 years ago. Other documents dealing with such issues as structure and governance, student fees and financial aid, enrollment growth, faculty and staff compensation, physical facilities, and other subjects, are sometimes seen as plans when they are really nothing more than a discussion of contemporary issues.
>
> Because there is often confusion about what planning is, and is not, it may be useful to consider a number of elements that should characterize any well conceived planning process. At a minimum, they include the following considerations:
>
> 1. Planning is a discipline.
>
> The Society for College and University Planning, which is the premier higher education planning organization in the United States, describes the discipline of planning this way:
>
> > . . . planning is a mental construct used to describe a broad variety of concepts and processes. It carries multiple meanings. Planning includes both the identification of objectives and the systematic organization and integration of information and other resources. Its nature can be strategic, focusing on organization mission and environment. It can also be operational, focusing on the achievement of mid-level goals and objectives (SCUP, 1991, p. 5).

Increasingly, the general perception of planning as a common-sense approach to organization is changing to a new perception where planning is a knowledge area, an academic discipline with its own base of data and information (e.g. economic reports, fiscal analyses, enrollment data, etc.), an assortment of techniques that have proven to be useful as organizational principles (e.g. focus groups, modeling, futurism, environmental scanning), and a defined set of tools (e.g. computers, statistical software packages, networks). As the idea of planning as a knowledge area has grown, it has evolved into a discipline of its own, in the same sense that mathematics, psychology, English literature, or history are disciplines. Having said that, however, it should quickly be added that while all sciences are disciplines, not all disciplines are science, and one of those that is not is planning.

Although the tools and techniques used by planners are improving in both their utility and precision, planning remains, and will always remain, more art than science. As such, it is important to remember that planners do not attempt to predict the future, but to consider a range of probabilities that may shape it. Prediction is far more the province of those who create budgets with specific caseloads and dollar appropriations to which agencies are expected to adhere. Planners take a longer view.

2. Planning is a way to think creatively about the future.

Of necessity, most of the time required to administer large organizations is devoted to short-term considerations. There are budgets to develop and approve, personnel to manage, and a host of other tasks that require immediate attention. Yet any organization that considers only its day-to-day challenges may eventually find itself adrift, perhaps having lost the forest for the trees. To take an agricultural example, a farmer is able to plow his fields in straight lines because he keeps his eyes on a point in the distance. If he only looked at the ground directly in front of the tractor, he would find at the end of the day that the furrows were more winding than straight. Similarly, managers and administrators need to stretch their vision for some distance into the future, and to consider possibilities and potential circumstances that may be far removed from immediate concerns.

Planners encourage policy makers and others to stretch their thinking, to consider alternatives that may not occur for some time, but which may require immediate attention. Physical plant development is one example of a responsibility where a long view is mandatory. Those engaged in planning may not know the final configuration or architectural style of a proposed building, but by examining enrollment projections, curricular needs, and potential fiscal resources, for example, a creative process ensues that will

eventually position the necessary resources in the right place at the right time.

3. Planning is a way to provide advance warning of problems that need to be addressed.

Because planning is a way to think creatively about the future, to stretch people's thinking in new directions, it also represents a way to identify problems long in advance of the time when they will need to be resolved. If, for example, a surge in enrollments is probable beginning five years in the future, . . . steps can be taken now to provide necessary facilities and funding to accommodate them. Further, a sound planning process may suggest alternative ways to serve students, prompt a needed re-examination of program duplication, lead to better uses of technology or different course scheduling systems, or indicate that alternative sources of revenue will have to be found. Were it not for the planning process, it is far more likely that events will control the managers, rather than the other way around. Control of events at any time is difficult, but a well-articulated planning process can make some elements of the future far more manageable than would otherwise have been the case.

Good planning can also provide guideposts for when decisions need to be made, and establish a specific agenda for dealing with problems that are likely to occur; such guideposts create decision frameworks, which create order. As an example, the Coordinating Council for Higher Education -- and now the California Postsecondary Education Commission -- have throughout the history of both agencies been responsible, in the words of the Master Plan Survey Team, for advising the Governor, the Legislature, and the higher education systems on such matters as differentiation of function, the appropriateness of programs, and the "development of plans for the orderly growth of higher education . . ." Through the Commission's planning function, higher education's growth, and even its occasional retrenchment, has been more orderly, and the Commission continues to provide advice and counsel concerning the time frame for important decisions.

4. Planning is a way to organize data and information into useful forms.

With the advent of the computer, the photostatic copier, the fax machine, and any number of other devices, the amount of available data has multiplied exponentially. Now, the Internet . . . and the "World Wide Web," in concert with new and more powerful personal computers, are promising a data explosion unimagined only a few years ago. For some, that "promise" constitutes a danger, for there is an increasing probability that the sheer volume of data may overwhelm those for whom it is intended to be useful. Anyone who

has "surfed the Internet" can report that while there is a tremendous amount of useful information on it, attempts to find specific items of information are often frustrated by the sheer size and complexity of "web technology."

Planners are well aware of the fact that not all data represent useful information, and that it is useful information that is needed more than ever. That fact constitutes a powerful challenge, for while any planning document can contain mountains of data, those data may not be helpful to decision makers. It is part of a planner's job to organize the mountain in such a way that useful decisions can emerge, and to make reasoned judgments about both the validity of the data and its relevance within a specific context. The fact that something is true does not necessarily make it useful.

5. Planning encourages people to consider the interrelationships between people and resources.

While planners must be concerned with data, one of their primary functions is to interpret the meaning of data for policy makers. In higher education, enrollments represent data, but in a planning process, the historical numbers must be projected into an uncertain future, and that process can involve numerous assumptions about human behavior, resource availability, physical facilities, organizational mission, and other factors. Any long-range plan that has been thought through to a reasonable conclusion will discuss the relationships that exist, or could exist, among many factors, and between different permutations of those factors. The planning process itself will engage people from different parts of the organization or system. It will encourage them to consider a range of possibilities, always remembering that planning is not just a procedure for analyzing numbers, but a process for creating change that will affect the lives of real people.

In the analysis contained in this report, the enrollment projections measure the demand for higher education services -- particularly at the undergraduate level -- based on both historical trends and various reasoned assumptions about rates of participation, transfer, and continuation. Yet the projection itself does not constitute a plan, but only a stage in the planning process. The next stage in the process is to relate the numbers to the availability of resources, which involves a consideration of physical capacity, support budgets, General Fund revenues and expenditures, bonded debt, and construction costs. All of this ultimately coalesces around a series of conclusions and options that relate the people who will desire services to the availability of the resources. From there, policy options will emerge that will eventually lead to specific decisions.

6. Planning is a dynamic process.

> It is an axiom of planning that all plans must assume environmental stability, which never occurs. The reason it must be assumed is that planners cannot, and do not attempt to, predict the future. The prediction of future events may be the job of prophets and seers, but it has no place in the job description of a planner. Higher education planners can be reasonably confident, for example, that over the course of a 10-year plan, periods of strong and weak economic growth will occur that will affect the flow of fiscal resources and thereby produce actual enrollments that are higher or lower than the long-range enrollment projection. Since they cannot predict when such events will occur, however, they must assume a more or less stable economic landscape. There may also be totally unforeseen events, such as natural disasters, that will affect the assumptions of a plan, but there is no way to integrate such possibilities into the plan itself.
>
> Because the future is inherently unstable -- yet must be assumed to be stable for planning purposes -- it is essential that planning be a continuous or dynamic process, one that is constantly fine tuned and adjusted as events unfold. It is a serious error to assume that any long-range plan will be followed in all of its particulars for the entire span of its view, a span that usually encompasses a 5, 10, or 15-year period. As noted earlier, plans are valuable because they encourage people to consider future possibilities and alternatives for which actions need to be taken in the present; but, since the future is not known, the plan itself must be capable of adjustment and periodic renewal. Accordingly, planning processes should be continuous, and while short-range -- one or two years -- budgetary and other decisions should always be made with reference to a long-range plan, the long-range plan should be considered as more of a guideline than a prescription. When guidelines, or long-range plans, become prescriptive, the dynamism of the planning process often fails, and administrators and policy makers substitute the expedient and commonplace for the thoughtful and creative (CPEC, 1995b, pp. 15-19).

These ideas have guided the Commission's thinking for at least the past ten years, and may well shape it far into the future. They are central to what any statewide long-range planning agency must consider to be part of its charge.

Appendix C Methodology of the Projections

The University of California and the California State University

The Commission's 1999 Enrollment Demand Model is based on the premise that the majority of undergraduate students expected to be enrolled in the University of California and the California State University in year 2010 have not yet begun their college careers. Because most University of California undergraduates either graduate or leave the University permanently within seven years, the University's enrollment in year 2010 is assumed to consist of all continuing students who will begin matriculation in year 2003 or later. Because the State University enrolls significant numbers of part-time working adults, and because these students usually graduate or permanently leave the University within eight years, the State University's enrollment in year 2010 is expected to consists of all continuing students who will begin matriculation in year 2002 and later.

The Commission made analytic judgements in estimating the future participation rate of various groups of first-time freshmen and transfer students, and then incorporated these rates, along with the most current information available on college persistence and graduation patterns, into a series of *life-tables* to simulate the likely enrollment life-span and history of undergraduate students from entry to final departure from an institution. The resulting long-range enrollment demand estimates, covering the out years 2005 to 2010, were compared against each system's current undergraduate population base to derive an annual average compounded change rate that was applied over the immediate five-year period, 1999 to 2004. The Commission's model controlled for four major sources of variation in enrollment demand: racial/ethnic group, age-group, level of admission (freshmen or transfer), and college preparation (regular admit or special action admit). Based on the interaction of these four variables, a total of 560 life tables were required to project enrollment demand for these two systems.

California Community Colleges

To estimate Community College enrollment demand, the Commission analyzed historical community college rates by ethnic-racial group and age group. Because the Community Colleges' reporting system changed in 1990 from a census count to a term-end count, it was necessary for the Commission to covert its community college database from a census headcount to a term-end count so that participation rates calculated by Commission staff would match participation rates calculated by the Chancellor's Office and the Department of Finance. The historical community college participation rates were computed by dividing age-specific and racial/ethnic-specific enrollments by the corresponding California population cohort. In setting future rates, the Commission considered pertinent factors related to educational equity, systemwide

strategic planning initiatives, intersegmental compacts, and the economic and labor market needs of the state.

In general, the Commission's community college forecast shows participation rates among the primary college age groups (i.e., 18-19, 20 to 24, and 25 to 29), across all ethnic-racial groups, increasing moderately throughout the projection period.

Validity and reliability of the Commission's model

Validity is commonly referred to as the extent to which a model or instrument measures what it purports to measure, while reliability refers to the consistency of measurement. According to the American Psychology Association, validity is not a characteristic of a model or instrument per se, but rather a characteristic of an interpretation drawn from a model for a particular educational purpose. Because the Commission uses the results from the enrollment demand study to draw major inferences regarding capital outlay and physical construction needs of the state's higher education enterprise, it is important to collect and analyze information regarding the validity and reliability of its enrollment model.

One form of validity and reliability can be established by examining the extent to which the Commission's past projections were correlated with actual enrollment levels. As revealed previously in Display 2-3, the Commission's 1995 enrollment estimates proved to be very reliable in comparison to actual higher education enrollments for the period, Fall 1994 to Fall 1998. For example, the difference between Fall 1998 total undergraduate enrollment of 1.88 million and the Commission's Fall 1998 estimate of 1.89 million was about two-tenths of a percentage point. Moreover, the Commission's model yielded consistent and reliable enrollment estimates across each of the three public postsecondary systems, and no single projection overestimated actual enrollment by more than 1.60 percent in any year.

In the future, the Commission intends to conduct several validity studies to examine the interrelationship among various facets of its enrollment model.

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