

Committee on Planning and Budget

## **Campus Enrollment Growth and Infrastructure**

**To: The Academic Senate, Santa Cruz Division:**

### **I. Growth and infrastructure challenges facing UCSC**

In a November 4, 2002 letter to UC Chancellors, President Atkinson asked the Chancellors to report by March 14th how many additional students their campuses might be able to accommodate on an accelerated basis. He explained that, according to new state demographic projections, UC system-wide enrollment could exceed by 10,000 to 20,000 FTE the number of enrolled students previously projected as of 2015. President Atkinson's request comes at a time when UCSC is facing additional challenges associated with growth and related infrastructure needs. These include:

- UCSC's recent rapid enrollment totaling approximately 50% since 1998-99;
- The likelihood that the campus will reach its 1989 Long Range Development Plan (LRDP) enrollment target of 17, 215 students within four years.
- The campus's commitment to increase the proportion of graduate students from 8.7 % currently to 15% of total student enrollments;
- The historic trend over the past two decades for UCSC to reside at or near the bottom of California Postsecondary Education Commission (CPEC) assignable square feet (asf) guideline averages for the UC system (Figure 1).
- The UC Office of the President (UCOP) goal that every UC campus should achieve at least 80 percent of CPEC asf guidelines (see below).

### **II. The goals of this report are to:**

- Share the results of CPB's consideration of campus growth and infrastructure issues with the Senate;
- Propose principles on which to inform campus decision-making on future enrollment growth;
- Catalyze decision making so that enrollment growth is tied to infrastructure development and resource allocation;
- Encourage the Administration to begin discussions concerning campus growth with city and UCOP officials at an early date.

We hope this report and the Senate discussions that follow will both help inform Chancellor Greenwood's March response to UC President Atkinson as well as result in comprehensive long-term campus growth and infrastructure planning. We will report to the Senate in the spring on the implications of her response with respect to the principles and concerns stated below.

CPB has investigated the linked issues of enrollment growth and campus infrastructure by holding meetings with VPAA George Brown, Chair of the Growth and Stewardship Task Force and Charles Eadie, Director of the Office of Physical Planning and Construction, reviewing growth documents and infrastructure planning documents, and discussing campus growth issues with Vice Chancellor for Planning and Budget Meredith Michaels and CPEVC John Simpson. CPB members have also communicated with or served *ex officio* on many other Senate and administrative committees investigating numerous aspects of the growth/infrastructure issue.

### **III. Findings and Recommendations:**

Based on these consultations, CPB proposes two Principles to help guide decisions on enrollment growth:

- 1. Link enrollment growth to available infrastructure (e.g., CPEC asf) at UCSC.**
- 2. Link overall enrollment growth with UCSC's graduate/undergraduate ratio.**

#### **III.1**

Space guidelines, developed by the California Postsecondary Education Commission (CPEC) calculate a broad envelope of space needed for instruction and research programs, within which campus planners and others develop priorities for capital projects and space allocation. These guidelines provide the university with one tool to examine its available infrastructure and needs for space. CPEC ratios for asf are based on numerous factors, including total enrollment, undergraduate/graduate ratios, use of laboratories, and other factors.

Data (Figure 1, Table 1) show that UCSC has historically been at or near the bottom of the UC system average in assignable space, and that we are now at an all time low (68% of CPEC guidelines) in this standing. While this ratio will improve slightly to 74.3% through the year 2006 with the completion of the Engineering II building and the Humanities and Social Science complex, projected future enrollment growth beyond 2006 will reverse this trend without the infusion of additional space and infrastructure resources. These points are illustrated in Figure 1, which compares historical and projected future trends in asf at UCSC compared to the UC systemwide average. More detailed assessment of UCSC's standing compared to other individual UC campuses can be made with data presented in Table 1.

Adopting the assumption that the quality of instruction and research performed at UCSC is in part related to the adequacy of assignable space and infrastructure, it follows that UCSC must maintain/improve its standing on CPEC guidelines relative to the UC systemwide average, consistent with UCSC's goal to maintain excellence in its I&R mission. Therefore, CPB recommends the following guideline:

***UCSC should defer enrollment increases if doing so would lower its CPEC standing below the current 20 year low of 68% for more than two consecutive years.***

In practice this guideline means that the campus must consistently monitor and have in place specific plans to ensure it has the space needed to accommodate projected growth in students and faculty. New buildings should be well advanced through the planning and funding phases before UCSC commits to accept additional enrollments. In light of the typical 5 - 7 year timeframe needed for the conception, planning, design, and construction of new buildings, the campus will have to continue placing more construction projects in the pipeline *now* to meet future enrollment growth expected to occur through 2010 and beyond. This in turn will require UCSC to make campus development decisions, which have yet to be made, about *where* the campus should grow [see Appendix I, below].

#### **III.2**

The Academic Senate and campus Administration are united in their commitment to increasing the proportion of graduate students enrolled at UCSC to 15% (although no specific timeline has

been set). The UCOP (UC Office of the President) has also called for increasing graduate enrollments system wide. A rapidly increasing undergraduate population would require a comparably rapid increase in graduate students in order to progress towards and achieve the 15% goal. Mindful of this goal, CPB recommends the following guideline:

***The rate of undergraduate enrollment growth should not reduce the relative graduate enrollment standings below the current level of 8.7%, which is the lowest in the UC system, nor should it defer for more than two consecutive years progress in achieving the stated goal of 15% graduate student enrollments.***

This means that, at a minimum, there should be a net increase of at least 10 graduate FTEs for every net increase of 105 undergraduate FTEs. Our projected growth in graduate enrollments can, thus, provide an upper boundary on our increase in undergraduate enrollments. Henceforward, the administration and the Senate will be expected to take affirmative measures to increase graduate enrollments whenever increases in undergraduate enrollment targets are contemplated.<sup>1</sup>

#### **IV Annual Process of Review and Consultation**

We envision an annual process of Senate consultation with the Administration on undergraduate enrollment targets that makes specific reference to the two principles stated above. The focus of this process would be to identify the specific years in which the campus should or should not agree to increased undergraduate enrollment targets, consistent with its physical and academic plans. The focus of discussion on each year's enrollment target would, therefore, be on physical and academic plans that are within two years of implementation. Success in implementation would allow consideration of accelerated enrollment growth; delays in implementation (based on internal or external problems) would trigger consideration of slowed enrollment growth.

It is not our intention to bind the administration (or future Senate committees) to a rigid formula, but rather to establish a framework for future discussion that links annual campus growth to actual campus performance in achieving agreed-upon goals. These goals include, at a minimum, raising the position of UCSC with respect to facilities and graduate education – areas in which it presently stands at the bottom of the UC system.

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<sup>1</sup> Figure 1 shows that we would be at only 72% of the CPEC guidelines if we were to reach our LRDP cap as late as 2010. This assumes that all projects currently in the pipeline through 2009 are funded and built on schedule and that the campus reaches its 15% graduate enrollment goal by that date. Figure 1 also illustrates how hypothetical enrollment increases to c. 18,000 or c. 20,000 student FTE would retard our progress toward 80% of the CPEC standard. (The space projections in Figure 1 assume that future capital projects come online at more than twice the rate of the past five years.)

**Table 1.** Available assignable square footage (asf) space, expressed as a percentage of university (1981 – 1990) or California Postsecondary Education Commission (CPEC; 1992 – 2006) guidelines.

Campus	Restudy									
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Berkeley	95.3%	98.6%	100.0%	96.8%	96.2%	96.2%	97.6%	98.2%	104.6%	97.0%
Davis	86.5%	84.7%	86.9%	86.3%	85.8%	85.7%	88.7%	81.5%	79.3%	77.7%
Irvine	75.0%	72.5%	85.0%	79.7%	74.1%	71.6%	71.5%	69.3%	71.2%	74.4%
Los Angeles	93.7%	96.1%	96.6%	97.1%	99.6%	98.8%	98.6%	98.7%	93.4%	100.9%
Riverside	125.3%	128.5%	129.2%	129.7%	124.6%	119.9%	115.3%	109.6%	97.6%	99.7%
San Diego	92.7%	88.3%	80.2%	79.1%	76.1%	72.2%	69.8%	79.1%	80.3%	91.0%
Santa Barbara	89.6%	104.4%	89.1%	88.9%	84.9%	84.0%	86.1%	86.8%	85.4%	87.8%
Santa Cruz	83.4%	82.7%	85.1%	83.0%	77.4%	77.4%	74.3%	71.1%	72.6%	74.8%
<b>Total University</b>	92.2%	94.0%	94.0%	92.4%	91.0%	89.8%	89.9%	89.0%	88.5%	89.8%

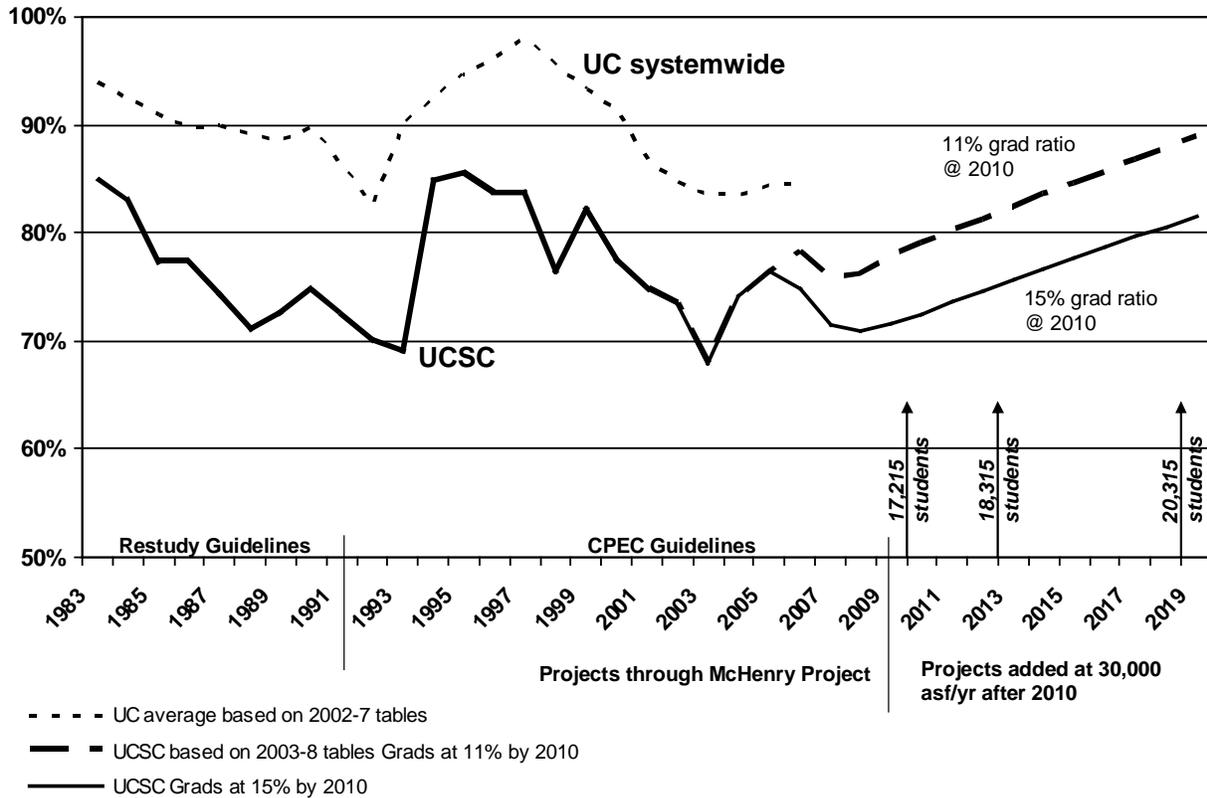
Table 1 continued below

Campus	CPEC									Projected 2002-07 Space Tables					
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Berkeley	85.5%	99.8%	88.6%	96.6%	102.6%	102.6%	99.9%	98.5%	93.9%	90.7%	93.2%	90.1%	91.1%	90.1%	92.7%
Davis	81.1%	88.7%	97.9%	96.7%	95.5%	99.9%	92.8%	89.9%	89.1%	86.0%	82.9%	80.2%	78.5%	83.2%	85.6%
Irvine	79.4%	84.0%	94.1%	93.0%	93.0%	96.8%	100.2%	95.4%	91.0%	85.6%	86.2%	84.0%	82.3%	82.6%	82.8%
Los Angeles	84.8%	92.3%	93.9%	93.8%	94.5%	100.7%	102.1%	98.0%	100.7%	96.2%	93.5%	92.5%	93.0%	96.1%	96.4%
Riverside	80.1%	85.7%	89.6%	95.5%	100.5%	95.2%	93.1%	87.8%	82.9%	79.1%	72.2%	71.5%	69.3%	73.5%	69.7%
San Diego	82.4%	90.1%	94.4%	93.3%	93.2%	100.0%	91.2%	90.6%	87.3%	81.7%	76.3%	79.1%	83.8%	80.5%	77.8%
Santa Barbara	84.7%	84.3%	92.5%	95.4%	96.2%	89.2%	91.6%	89.8%	91.1%	85.3%	84.7%	85.6%	83.9%	81.8%	81.7%
Santa Cruz	70.1%	69.2%	84.9%	85.5%	83.8%	83.8%	76.5%	82.2%	77.5%	71.4%	67.8%	69.2%	69.5%	72.3%	74.3%
<b>Total Univ.</b>	82.6%	90.0%	92.4%	94.6%	96.2%	98.0%	95.5%	93.3%	91.2%	86.7%	84.7%	83.6%	83.6%	84.5%	84.8%

\* Calculated using actual fall data - 1991 not available.

Note: Restudy Guidelines were not as generous as CPEC. Thus, percentage of actual to allowed was greater.

**Figure 1.** UCSC and UC systemwide (including UCSC) space inventory comparison to CPEC I&R guidelines. Projections after 2010 based on addition of 30,000 asf/year (Note: projected annual addition of 30,000 asf will depend upon UCSC’s success in working with UCOP to receive higher asf targets, and larger government offered bond measures approved by the state legislature. Actual asf space added/projected for UCSC over the period 1998 – 2009 will average ~26,400 asf/year).



Respectfully Submitted,  
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## **Appendix I: Accommodating Growth at UCSC**

We have stated in the Report that the planning and construction of new projects must be put in the pipeline (planned, funded, and built) in order for the campus to accommodate future enrollment growth while maintaining, and preferably improving, the present quality of UCSC's Instruction and Research programs. Growth can be accommodated at UCSC following any or a mix of the following four strategies: further infill (i.e., placing more buildings near existing buildings); developing the north campus; developing the lower campus (i.e., the meadow); and/or growing off campus. We summarize below what CPB has learned about each of these options.

### **1. Further Infill**

Infill of the developed core of the campus has the advantages of achieving cost savings by utilizing existing site information, minimizing transformations of existing forests and meadows to buildings and roads, and retaining the architectural principle of colleges forming an arc around the developed core of the campus.

Further study is needed to determine how much additional asf, for housing and for academic programs, can be accommodated through infill. With respect to housing, initial study indicates that the campus could accommodate through infill approximately 50% of projected undergraduate students. While this assumes compliance, in terms of land use, with the current LRDP, it falls short of the campus's goal to house up to 70% of its undergraduate student population. Lower division students (freshmen and sophomores) are presumed to represent the greatest demand for on-campus housing. However, the campus is undertaking a survey to determine the demand for on-campus housing by upper division students. The extent of interest in living on campus by upper division students will influence the extent to which infill can fulfill on-campus housing needs.

Beyond this, it is not clear that existing campus infrastructure (sewers, parking, access etc.) are sufficient to support the enrollment growth presently projected through 2006, or that building over close-in parking (which is where the infill would occur) would be cost-effective if campus employees were not expected to bear the expense of replacement parking through higher fees.

### **2. Developing the north campus**

Substantial analysis, under the auspices of the Growth & Stewardship Taskforce, has been done with respect to development of the north campus. Building the north campus would involve additional major investment in new infrastructure (water, electricity, roads, etc.) in addition to buildings. The cost premium for developing the north campus has been estimated as a minimum of 10% above the costs for comparable infill projects. In light of ever-present budget constraints, this suggests that development of the north campus will remain a less viable option relative to other (cheaper) options. Land use constraints, extensive environmental studies, the need to mitigate the concerns these studies raise, and the need for infrastructure (roads, power, water, sewer, etc.) are additional factors that must be considered.

In some respects expansion into the north campus could be considered equivalent to developing a new UC campus due to the infrastructure needs. The 1997 funding strategy for the Merced campus called for \$400 million in state capital funding (\$250 million in advance of the opening) plus a core budget of \$10M per year in advance-funding of the base operation budget until the

campus reaches its target of 5,000 student FTE in 2010. CPB notes that UCSC has already agreed to accept more than 5,000 additional student FTE between 2000 and 2006 without any forward-funding of capital, and with the same per student increment that the campus would get for accepting far fewer students. We believe that cost-effective development of the north campus would be best discussed by UCSC, UCOP, and the local community in the context of a hypothetical commitment to further enrollment growth on the order of 5,000 FTE+ (similar to UC Merced). The timeline for such a hypothetical discussion is much longer than the timeline required to plan for the accelerated incremental growth that President Atkinson has asked our campus to consider.

### **3. Developing the lower campus**

Development of the lower campus was not envisioned as part of the existing LRDP. Therefore, the basic studies have not been done considering such issues as biotic impacts, viewshed, protected landscape, and programmatic uses. The lower campus, similar to conditions existing on some already-developed portion of the campus, has a karst substratum characterized by numerous underground caves and streams. This has implications for costs of construction, since substantial karst formations typically must be reinforced with concrete before building can begin.

All three options above will run up against traffic and access limitations to the campus (High St., Bay Ave., Western Dr.).

### **4. Off-campus growth**

Off-campus growth is already serving as an implicit strategy for coping with the growth the campus has experienced. UCSC has expanded off campus in the following ways and places:

- Student housing at the University Inn on Ocean Street (near downtown);
- Administrative offices at the University Business Park and nearby buildings on the Mission Street extension (west side);
- Permanent research space and some faculty offices at:
  - i. Long Marine Laboratory (west side);
  - ii. Monterey Bay Education, Science, and Technology (MBEST) Center (Fort Ord); and
  - iii. Silicon Valley Center (Mountain View-planned).

Campus planners estimate that the cost of building off campus (because infrastructure is already in place) is at least 10% less than infill, and very much less (at least 20%) than the north campus. Moreover, the timeframe for developing space off-campus, whether by rebuilding or remodeling, is generally shorter than for construction on campus.

The important point is that, even in the absence of a plan, campus growth that cannot be accommodated by infill is already spilling downhill, and that this should be done in an optimal way. CPB believes that the campus should examine *explicitly* how off-campus growth should accommodate future enrollment growth. This would include consideration of space availability, transportation issues, development costs, programmatic impacts, community impacts, and other issues.

There has, however, been no serious consideration of moving permanent faculty offices and regular instructional space off-campus. Certainly, the Senate has not discussed whether it wishes

to grow beyond the point where the campus can maintain the physical proximity of the I&R mission. Neither, however, has the local community been invited to consider the possible future growth of UCSC as something other than the channeling of increased traffic through a single intersection on the upper West Side and the increase in campus water demands.

The time has come for the city, the campus, and UCOP to enter into discussions about *planned* growth – how much? and where? CPB believes that the answers to these questions are at least partially interdependent, and that all parties to the discussion have genuine choices to make once we move beyond the annual crisis of incremental growth. For the city, the choice is whether to focus on the question of campus access through Bay and High (with attendant issues of alternative access and/or alternative transportation), or whether to consider the possibility of an academic/residential/economic interface with UCSC (a University neighborhood), perhaps in one of the presently under-utilized industrial areas. For the campus, the choice is whether and how growth might help us to become better at our core mission of teaching and research. For UCOP, the choice is whether it is academically and economically more desirable to accommodate demographic growth through incremental expansion of existing campuses, or through the creation of new campuses.

Our present point is merely that decisions about these options must be made soon to place sufficient capital projects in the pipeline for the campus to favorably consider accelerated enrollment growth.