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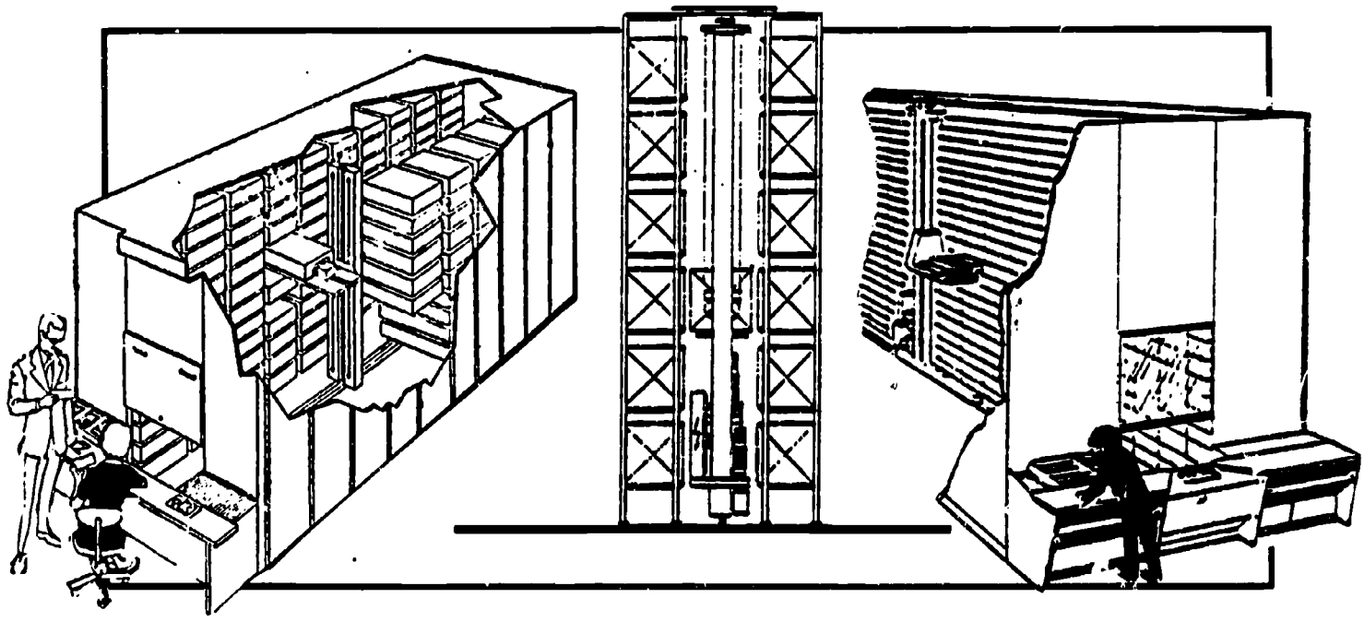
ABSTRACT

This report examines the newly proposed systemwide library plan of the California State University (CSU), which will govern the planning and development of library space on CSU campuses for the next 10 years. The commission's report evaluates the state university's updated library space standards and discusses policy issues that relate to on-site and off-site compact storage systems for library materials. The report is presented in four sections: (1) Background and Conclusions; (2) Present and Proposed Space Standards; (3) Policy Questions for Further Study; and (4) Remote versus On-Site Storage. Follow-up information on the CSU library plan is requested by February 1, 1991, and April 1, 1991. The commission's staff will then review the additional material and submit a supplemental report to the commission in June for its approval. Appended materials, which make up the major part of the report, are as follows: (1) state university submission (June 1990), which includes the documents "Library Planning in the California State University: 1986/87-1996/97," "CSU Capital Outlay Program Planning for Libraries; Policies, Standards, and Procedures," and "Justification and Cost Impact of the New CSU Library Policies and Standards"; (2) the commission response (August 16, 1990); (3) state university response (October 1990); (4) commission letter (November 7, 1990); (5) executive summary of a systemwide library space study for 1984-2004 prepared by HBW Associates; (6) commission comments on the CSU library space study, a report to the state university in response to budget control language in the 1984-85 Budget Act (January 1985); (7) state university materials (January 1985); (8) ACRL college library standards (1986); (9) state university invitation for bid; (10) an article by John Kountz, "Robots in the Library: Automated Storage and Retrieval Systems"; and (11) cost data on library storage. (16 references) (MAB)

LIBRARY SPACE STANDARDS AT THE CALIFORNIA STATE UNIVERSITY



CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

Summary

This Commission report examines the California State University's newly proposed systemwide library plan. That plan will govern the planning and development of library space on State University campuses for the next ten years. The Commission's report evaluates the State University's updated library space standards and discusses policy issues that relate to on-site and off-site compact storage systems for library materials.

The report is presented in four sections: (1) Background and Conclusions, pp. 1-8; (2) Present and Proposed Space Standards, pp. 9-14; (3) Policy Questions for Further Study, pp. 15-20; and (4) Remote versus On-Site Storage, pp. 21-26.

The report requests follow-up information from the State University on its library plan by February 1, 1991, and April 1, 1991. The Commission's staff will then review the additional material and submit a supplemental report to the Commission in June for its approval.

The Commission adopted this report at its meeting of January 28, on recommendation of its Policy Development Committee. Additional copies of the report may be obtained from the Publications Office of the Commission at (916) 324-4991. Questions about the substance of the report may be directed to Kevin G. Woolfork of the Commission staff at (916) 322-8007.

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On the cover: Illustrations of automated storage and retrieval units that provide compact on-site storage for infrequently used library materials. This storage and retrieval system is currently being tested at California State University, Northridge, and forms a key component of the State University's library plan. More information on this type of storage appears on pp. 157-160 of this report.

LIBRARY SPACE STANDARDS AT THE CALIFORNIA STATE UNIVERSITY

A Report to the Legislature in Response to Supplemental Language to the 1990-91 State Budget

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
Third Floor • 1020 Twelfth Street • Sacramento, California 95814-3985

COMMISSION REPORT 91-1
PUBLISHED JANUARY 1991

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Displays

1 Background and Conclusions

Reasons for the report

On advice of the Legislative Analyst (Display 1, page 2), the California Legislature adopted Supplemental Report Language to the 1991 Budget Act (Display 2, page 3) directing the California State University to submit its revised space standards for libraries to the California Postsecondary Education Commission for review.

The Analyst's and Legislature's concerns stemmed from a request by the State University in its 1990-91 proposed capital outlay budget for library projects at its Fullerton and San Diego campuses whose square footage had been determined using new library space standards developed by a State University task force. Neither the Legislature nor State administrative agencies had formally approved these space standards, and without this approval, the Legislative Analyst recommended against basing construction plans for the library facilities on them. Further, since the Commission has recently finished a major review and update of other space standards for higher education facilities (*A Capacity for Learning: Revising Space and Utilization Standards for California Public Higher Education*, January 1990) and had reviewed and commented on segmental library space standards in the past (1985), the Analyst suggested that the Commission review the new standards and propose recommendations regarding them to the Legislature and Governor.

In this report, the Commission not only responds to that request but comments as well on the Legislature's directive that the State University and the University of California submit a plan for increased use of the University's two regional libraries by March 1, 1991 (Item 5 of Display 2), since the issue of joint use of those two storage facilities has implications for the State University's library space standards.

Progress of the study

On June 1, 1990, the State University submitted a packet of information on the revised library space standards to the Commission (Appendix A). On August 16, the Commission sought further information from the State University (Appendix B), and on October 8 the State University responded (Appendix C). On October 16, Commission staff met with Thomas Harris, Director of Library Affairs for the State University, to discuss the new standards, and the staff has exchanged further information with him since then.

In its Supplemental Language, the Legislature directed the Commission to submit this report to the Legislature and Department of Finance by November 1, 1990. Due to the complexity of these issues, however, the Commission's Executive Director notified both of these agencies on November 7 that this report would not be available until December (Appendix D).

In the following paragraphs, the Commission presents its findings and recommendations regarding these issues. Many of these recommendations are in the form of questions for State University response by either February 1 or April 1, 1991.

The new space standards

Findings

1. In January 1985, the Commission reviewed and agreed with most of the recommendations presented by the State University's library consultants, HBW Associates, in their 1984 report, *Systemwide Library Space Study for Period 1984-2004* (Appendix E). The Commission reaffirms its 1985 findings (Appendix F) and acknowledges that the consultants and the State University completed the additional work recommended in the Commission report (Appendix G).

DISPLAY 1 *Comments of the Legislative Analyst on the Request of the California State University for Funds to Plan Library Additions at Its Fullerton and San Diego Campuses*

Fullerton—Library Building Addition

We recommend approval of $287,000 in Item 6610-301-791(18)—a reduction of $72,000—for preliminary plans for an addition to the library at CSU Fullerton, based on existing library space standards. (Estimated future savings $3.8 million.)

The CSU's budget requests $359,000 for preliminary plans for an addition to the Library Building at the Fullerton campus. The university estimates future costs of $19 million for the 101,400 asf addition. The size of the addition is based on new space standards recommended by a CSU task force, rather than the space standards that have been recognized by the Legislature for previous library projects. These new standards have never been presented to the Legislature for review, nor has CSU provided information justifying the need for the new standards.

Based on the legislatively recognized standards, the addition should include 81,000 asf, or 20 percent less space than proposed. An example of CSU's changes is the computer work station proposal for the Fullerton library. The proposed project includes about 18,000 asf for 366 computer work-stations. Under CSU's library space changes, this space is nearly double the 9,150 asf that otherwise would be provided for reader stations under the state-approved standards. Moreover, the proposed space for computer work-stations is inconsistent with CSU's systemwide computer space plan. That plan (which details the number and location of existing and proposed computer work-stations on each campus) shows that CSU does not plan additional work-stations, beyond the 2,900 asf already in place, in the Fullerton library.

Adoption of the new space standards recommended by CSU's task force would have major implications for the amount of library space constructed on CSU campuses in the future and the consequent cost to the state. We believe that *rather than silently initiate new standards through new projects*, CSU should officially present these proposed changes first, to the California Postsecondary Education Commission and then, upon the commission's approval, to the Legislature and the administration. This submittal should detail the cost implications as well as demonstrate why new standards are necessary to meet program priorities. We recommend that until CSU has made this case, and the Legislature has agreed to new standards, library projects should be planned and built in accordance with the existing state standards. We therefore recommend that the Legislature reduce the amount requested in Item 6610-301-791(18) for preliminary plans by $72,000, based on a 20 percent reduction in asf and cost. (Estimated future savings of $3.8 million.)

San Diego—Library Addition

We recommend approval of $337,000 in Item 6610-301-791(50)—a reduction of $150,000—for preliminary plans for an addition to San Diego State University's library, based on existing library space standards and equipment cost guidelines. (Estimated future savings: $13 million.)

The budget includes $487,000 for preliminary plans for an addition and renovations to the Library Building at San Diego State University. The CSU estimates future costs of $34.6 million for the project, which consists of an addition of 139,500 asf and renovation of 26,200 asf in the existing library building. The size of the addition is based on new space standards recommended by a CSU task force, rather than the space standards that have been recognized by the Legislature for previous library projects. As discussed above, these new standards have never been presented to the Legislature for its review, nor has CSU provided information justifying the need for the new standards.

Source: Office of the Legislative Analyst, 1990, pp. 1339-1341.

DISPLAY 2 *Language in the Supplemental Report of the 1990 Budget Act Affecting Libraries of the California State University*

4. **Library Space Standards.** It is the understanding of the Legislature that by June 1, 1990, the California State University (CSU) shall have submitted the CSU revised space standards for CSU libraries to the California Postsecondary Education Commission (CPEC) for commission review. The submittal should include supporting justification and cost implications of any proposed changes and consider, among other matters, (1) increased on-site compact storage, (2) provision for reader stations with computer/telecommunication capabilities, including their relationship with the Campus Information Resources Plan, and (3) a 10-year planning target date beyond building occupancy. In addition as part of this review CSU and CPEC shall evaluate the efficacy of open stack area limits for campuses that reach their master plan enrollment ceilings. It is the intent of the Legislature that CPEC complete its review and transmit its recommendations to the Joint Legislative Budget Committee, the legislative fiscal committees, and the Department of Finance by November 1, 1990 in order that the new standards may be considered and acted upon by the Legislature during deliberations on the 1991-92 budget.

5. **Regional Library Plan.** It is legislative intent that the University of California and the California State University cooperatively plan to increase the use of the Southern and Northern Regional Libraries for CSU collections. The segments shall jointly submit this plan to the Legislature by March 1, 1991, including identification of the (1) potential savings to the state resulting from increased CSU use of the regional libraries and (2) extent to which these potential savings would be realized under the plan.

Source: California Legislature, 1990, p. 147.

2. The Commission is in general agreement with the State University's proposed space standards for bookstacks and reader stations, and it concurs with the existing space formula for technical processing, public services, and the method of determining multi media/audio visual space, although it requests further background information on these standards, as discussed below. The Commission also agrees with the change in the time frame for State University library planning from two years to ten as more practical and effective.

3. The Commission acknowledges that the State University has embarked on a thorough process of planning the future of its campus libraries. This process has resulted in the identification of important policy objectives that the Chancellor's Office of the State University is continuing to pursue through a consultative and ongoing process with campus library and administrative personnel.

Recommendation

The Commission recommends that the State University submit answers to the following questions to the Commission, the Joint Legislative Budget Committee, and the Department of Finance by February 1, 1991:

1. **What background information and planning assumptions, such as those presented by the association of College and Research Libraries in its statement on standards (Appendix H) were used to generate the new standards?**

2. What are the cost implications of changes to the proposed standards for each standard separately and how were these costs determined? The old space standards, the new standards, and the increase or decrease in capital and operations costs associated with each change should be listed. In responding to this question, the State University may wish to consider the specific impact of the changes in standards on one "hypothetical" campus as opposed to showing their impact on all campuses.

3. In earlier work, it was suggested that State University campuses adopt a policy of open stack area being 60 percent of total space, whereas the new State University plan shows it as 70 percent. Please explain the decision to adopt the 70/30 as opposed to 60/40 open-to-compact storage ratio. Also, please address the impact that adopting the 60 percent of library material in the open stack space, as opposed to 70, would affect the "nonbook space" proposal (35 percent of open space versus old standard of 25 percent of total area).

4. Also on this subject, why was the allotment for nonbook materials increased to 35 percent of open stack space? Although this 35 percent generates a need for less space than the old standard, the Commission does not have background data showing how the space calculation for this function was determined. In the documents sent to the Commission on October 8, 1990, and reproduced in Appendix C, State University officials claimed that more of these special materials are to be maintained in compact storage, and they also claimed space savings related to the use of microform technology. Please quantify these space savings and explain why they do not lessen the need for openstack space for nonbook materials to an amount even lower than the 35 percent in the new plan.

5. In the new library plans, State University officials comment that no equipment is included in the graduate study carrels; this appears to be a change from earlier State University library practices. Is there a change from past policy or practices? If so, please explain the reasons for it.

6. The past library space formula allotment for graduate study space was predicated on the fact that State University graduate students had little other formula-generated space on campus to conduct their work. How do the changes in graduate student laboratory space standards, recommended in "A Capacity for Learning," impact the need for reader station space for graduate students?

7. What are library telecommunications/computer workstations (LTCWs), and how do they differ from media/audio visual library space functions and self-instructional computer labs? Also, please explain the need for 49 assignable square feet for each such workstation, the need for 10 percent of total reader station space for them, and what equipment they use that is not already accounted for in the allotment of 35 assignable square feet for graduate carreis.

Tenant functions in State University libraries

Finding

The Commission remains concerned with the issue of tenant functions occupying library space and requests that the State University examine this subject further. The new State University library plan maintains policies that have led to a minimum of 100,000 square feet of library space being occupied by other campus activities on nine campuses. In the Recommendations part of this section, the Commission suggests some actions the State University should take to examine the scope of this problem and develop a policy on this issue.

Recommendation

The Commission recommends that State University officials examine and document the total amount of library space occupied by non library "tenant" functions on its 19 existing campuses and how long this library space has been

so occupied. They should then develop policy recommendations on the orderly removal of non-library operations from library buildings, as the space occupied is needed for library operations. The changes in systemwide library policies that emanate from this work should be submitted to the Commission, the Joint Legislative Budget Committee, and the Department of Finance by April 1, 1991.

Limits on library collections

Finding

The Commission is not convinced that developing strict limits on open stack area based solely upon enrollment ceilings, as suggested by the Legislative Analyst, is practical. The lack of research data on this concept and the absence of successful examples of this approach nationally raise serious questions about the viability of relating these two components in library space-generating formulas. Nonetheless, the Commission agrees with the Legislative Analyst that some policy to limit the amount of library space dedicated to open stack area in State University libraries should be developed.

Recommendation

The Commission recommends that the State University develop a prospectus on how to go about the comprehensive process of implementing limits on the maximum amount of space allocated to open stacks. This prospectus should be prepared for submittal to the Commission, the Joint Legislative Budget Committee, and the Department of Finance by April 1, in time for deliberation and action on the 1991-92 budget. New policies in this area should be ready for implementation at the end of the State University's existing ten-year library plan, and should be taken into account in the development of designs for new library facilities not currently in the planning or construction phases.

Planning for library compact storage systems

Finding

The current State University five-year Capital Outlay plan calls for the construction of several campus libraries, all of which will contain some type of compact, high-density storage for low circulation library materials. Concurrently, the State University is proceeding with the implementation and testing of its new Automated Storage/Retrieval System of compact storage on the Northridge campus. These two types of compact storage systems are not compatible, and the State University should reconcile its planned usage of compact storage space.

Recommendation

State University officials should develop plans for proceeding with the construction of compact storage space over the next four to six years, while the automated storage and retrieval system is being developed and refined. If there are no plans to replicate the Northridge example elsewhere until a minimum of 10 years after each campus presently requesting new library space has occupied that space, this also should be reflected in these plans. These scenarios and any others should be studied and reported to the Commission, the Joint Legislative Budget Committee, and the Department of Finance by April 1, 1991.

State University use of the University of California's regional libraries

Finding

The differences in planning assumptions used to generate cost information for the University's remote library storage facilities in comparison with the State University's on-site compact storage systems renders cost comparisons between them inconclusive. Based on the substantial differences between the two segments in their educational missions, library collections, and service populations, the Commission does not believe that the State University should be required to utilize storage space in

the University's two remote library storage facilities in place of on-site compact storage. However, as campuses of the State University collect materials that have been weeded from their open stack and on-site compact storage areas -- materials that are essentially out of circulation -- campus officials should determine whether or not the materials would be suitable for storage in the University's remote library facilities. There is the possibility that the State University could access a modicum of the space available in the regional storage libraries, and thus the Commission suggests that State University officials study the feasibility of this alternative.

With this suggestion, the Commission in effect asks the State University to evaluate the feasibility of planning for a "three-tiered" storage system for its library documents.

- The first tier is the open stack bookshelves, which are used to store library collections for casual browsing and immediate access for library users.
- The second tier is on-site compact storage systems, which provide more condensed storage of library materials. These collections are not for browsing and require potential users to place orders for documents and wait a period of time to receive them.
- The third, and newest, tier would be use of the University's regional storage libraries at Richmond and UCLA. Materials stored here would be those for which there is extremely low demand and where there is no immediate need for documents after they are requested.

Recommendation

Although the Commission feels that the State University should not be required to use the University's regional libraries as substitutes for on-site compact storage, the State University might possibly utilize some of this remote storage space. The State University should begin developing systemwide criteria for campus weeding policies for library materials. The State University should then report on the feasibility of developing criteria for placing low circulation library materials in remote storage that are similar to those developed by the University. The plans should include a survey of current weeding policies on the campuses in comparison to the weeding of library materials that actually occurs and should describe ranges of high, average, and low usage patterns for the campuses. The campus weeding plans should specify when a document should be taken from open stack space and put into on-site compact storage, when a document in compact storage should be sent into remote storage, and when a document should be discarded from the collection entirely. The preliminary planning requested here should be submitted to the Commission, the Joint Legislative Budget Committee, and the Department of Finance by April 1, 1991.

The State University should also report on its efforts to achieve zero growth library collections on its campuses, This information is in reference to the August 3, 1984, invitation for bid for the systemwide study of campus libraries (IFB-LA-84-001). This report should be submitted to the Commission, the Joint Legislative Budget Committee, and the Department of Finance by April 1, 1991.

Further Commission action

Commission staff will evaluate all of the information that it has asked the State University to provide, and its executive director will write a letter to State University and appropriate State officials regarding this additional material prior to June 1, 1991.

This past November, the State's voters rejected Proposition 143 -- a $450 million general obligation bond issue for construction of public higher education facilities. The full impact of this action on the construction plans of the State University is unknown at present, but if a shortage of funds affects its plans for library construction in the immediate future, Commission staff will request further information from State University officials on any changes in its library building plans.

Organization of the rest of the report

The rest of this report is organized into four sections that support the above findings and recommendations:

- Part Two provides background on State University library space needs, focusing on work done by the consultants who examined its library practices in 1984, as well as on the State University's proposed library space standards.
- Part Three discusses four research questions for further study and resolution by the State University: (1) the existence of non-library (tenant) functions in State University libraries; (2) the efficacy of open stack area limits for campuses that reach their master plan enrollment ceilings; (3) State University policy on the type of compact storage to be used on its campuses, particularly its new "Automated Storage/Retrieval System;" and (4) the possibility of the State University utilizing both on-site and remote storage space for its lowest circulation library materials.
- Finally, Part Four discusses the most complex issue in this report: whether or not the State University should use space provided in the University of California's two regional storage libraries. Although this issue is not specifically referenced in the Supplemental Report Language calling for this study, the issue of on-site versus off-site storage of low circulation library materials, particularly at the University of California's two regional storage facilities, is a major issue with regard to State University library space and is part of the Supplemental Language reproduced in Display 2 above.

2 *Present and Proposed Space Standards*

Origins of the existing standards

During legislative hearings on the proposed 1984 Budget Act, the Legislative Analyst recommended that the State University's library space standards be fully reevaluated in light of changes in library needs, since the standards in place at that time had been drafted by the Coordinating Council for Higher Education in 1966 (Display 3, page 10). As a result, the 1984 Budget Act contained $92,000 for the State University's systemwide office to contract for a thorough examination of the existing standards and the proposal of new ones, as needed; the Commission was directed to review and comment on this study.

The consultants selected for the State University's study were HBW Associates, Inc. Library Planners and Consultants of Dallas, Texas. They studied nine State University libraries and submitted their report to the State University in Fall 1984. Among other things, they found the nine campus libraries to be operating with a significant space deficit (313,960 square feet); they noted the existence of other functions (referred to as "tenant functions") in the libraries that were occupying space intended for library use, thus crowding other library functions; they made projections of book collections at the libraries over a 20-year period; and they provided some data supporting the State University's new compact information storage technology. (The executive summary of the consultants' report is reproduced in Appendix E.)

In 1985, the Commission agreed with most of the consultants' findings, particularly the existence of a large space deficit in the nine libraries studied, and the adverse impact of the tenant functions on library operations. The Commission, however, criticized the consultants' work for not including any recommendations for revised library space standards, as had been envisioned by the Legislature and others who initially called for this study. The Commission reached the following conclusions: (1) the State University's libraries do have substantial space deficits; (2) these deficits are exacerbated by the tenant functions; (3) the consultants should present some formal review/rewrite of the library space standards; (4) better cost information on the State University's proposed Automated Storage/ Retrieval System -- especially in comparison to the University's remote storage facilities -- is needed; and (5) the effectiveness of the Automated Storage/Retrieval System should be evaluated when it is brought on line (Appendix F).

Officials of the State University agreed with the Commission's observations on space deficits, tenant functions, and the need for more work from the consultants; they cited the tight timeline for completion of the project as the reason new standards had not been proposed. They presented further cost information on the Automated Storage/Retrieval System in comparison with the University's remote information storage facilities, but they noted that these two storage methods were not comparable in design or function and that the segmental missions each method supports are substantially different. The cost information they developed in 1984 showed that the construction costs for the two systems, on a cost per volume basis, appeared to favor their automated storage and retrieval system, although they acknowledge that these data are now obsolete.

The State University also requested additional work from its consultants on the actual space standards. In January 1985, HBW Associates responded with an expanded critique of the State University library space standards, including justifications for existing practices and recommendations for proposed changes. The follow-up report of the consultants and the State University's response are included in Appendix G.

Of the four basic functions inherent in State University campus libraries -- bookstacks, reader stations, technical processing and public services, and multi-media and audio-visual centers -- space-generating formulas existed in 1984 for the first three. The following paragraphs describe each of these four functions, the revised standards suggested by the consultants in their January 1985 follow-up re-

DISPLAY 3 *1984 Comments of the Legislative Analyst on a Request for a Study of Standards for Library Space at the California State University*

CALIFORNIA STATE UNIVERSITY—CAPITAL OUTLAY—Continued

Systemwide Library Study

We recommend approval of Item 6610-301-146(3), $100,000 for a systemwide study of library space needs in comparison to existing library space standards utilized by the CSU. We further recommend that the Legislature adopt Budget Bill language requiring the CSU to submit the completed library space study to the Postsecondary Education Commission for review/comment before submitting it to the Legislature.

The Trustees' 1984–85 capital outlay program included a total of $2,060,000 for planning additional library facilities on four CSU campuses. These projects have a combined total estimated project cost of $48.1 million. In addition, the Budget Bill includes $1,393,000 to provide additional library space at the Fullerton campus. The Trustees' budget did not request funds for a study of the system's library standards.

According to the Department of Finance, the planning funds for the individual campuses were not included in the Governor's Budget because existing library space standards need to be reevaluated before funds are devoted to individual campus library facilities. Instead, the budget requests $100,000 for a study of the existing standards for library space. The Department of Finance indicates that the purpose of the study is to provide sufficient information to the CSU, the administration, and the Legislature on the segment's overall space needs for library collection and library sevices.

Need for Library Study. The operation/space utilization of library facilities varies widely among the 19 CSU campuses, and recent technological changes in the processing and storage of library materials may affect the facilities' requirements for library capacity and services. For example, a substantial portion of some campuses' collection of library materials is contained on microfilm/microfiche, which substantially reduces space requirements. In addition, CSU has installed new automated information systems which should result in a more efficient use of library space.

Considering these factors we believe that it would be appropriate to reassess the CSU library space guidelines. The amount proposed should fund the necessary consultant services to thoroughly evaluate the library standards and assess the campus library needs throughout the CSU system. We therefore recommend approval of the requested funds.

Study Results Should be Submitted to the Postsecondary Education Commission and then to the Legislature. The library space guidelines used by CSU have been developed as a means to ensure that adequate and appropriate physical facilities are available at each campus. The current space guidelines and utilization standards were developed in concert with the California Postsecondary Education Commission (at that time, the Coordinating Council for Higher Education). The commission has the staff and expertise to provide a needed perspective on this subject. Accordingly, we believe that it would be desirable for the Postsecondary Education Commission to review and comment on the study of CSU library space guidelines. The CPEC's comments will aid the Legislature in evaluating future capital outlay proposals. We therefore recommend that the following Budget Bill language be adopted under this item:

"Provided that prior to December 1, 1984, the CSU shall submit its completed library space study to the California Postsecondary Education Commission for review and comment. The CSU shall by February 1, 1985, submit a final report, including the commission's comments, to the chairperson of the committee in each house which considers appropriations and to the Chairperson of the Joint Legislative Budget Committee."

Source: Office of the Legislative Analyst, 1984, p. 1867-1868.

port, and other comments of the consultants from their reports:

1. *Bookstacks (the shelving needed for volumes contained in the library)*: The State University's consultants confirmed the propriety of the existing State University standards of 10 bound volumes per square foot, plus an allowance of 25 percent for special materials and other than bound volumes. The consultants expressed concern that in most of the State University libraries bookstack space was overcrowded.

2. *Reader stations (table, carrel and other seating where library materials may be used)*: The consultants recommended continuation of the existing standard for reader stations of 20 percent of full-time-equivalent student enrollment, with 90 percent of the resulting reader stations at 25 square feet and the remaining 10 percent at 35 square feet for larger, special-function reader stations such as audio-visual computer terminals and microfilm machine carrels. The consultants expressed concern, however, because the actual amount of reader station space available in many libraries had been compressed due to expanded space dedicated to bookstacks.

3. *Technical processing and public services (staff and automated processing of information requests, administrative space, and staff facilities for library personnel)*: As of the 1985 reports, the State University standards were 225 square feet per full-time-equivalent library staff to provide space for all staff offices, work rooms, service desks, staff conference rooms, storage areas for materials in process, and the like. This 225-square-foot allowance included staff support or auxiliary library spaces not included in traditional staff work space formulas. The consultants recommended reducing the staff space to between 175 and 200 square feet, with additional space of up to 50 square feet for staff support and auxiliary space as justified.

4. *Multi-media and audio-visual centers (areas for using electronic equipment for reviewing films and microfilms and listening to tapes or records)*: As of the 1985 report, no formal space standards existed for this function; rather, space was determined in the State University's program justification on a library-by-library basis. The consultants agreed with this practice.

In their initial study, the library consultants also studied the impact on State University libraries of such nontraditional bookstack techniques as remote storage and automatic storage and retrieval systems. They recommended that the State University proceed with development of its proposed "Automated Storage/Retrieval System" for more compact storage of low-circulation library materials. They further discussed the issue of compact storage of State University library material, which is also discussed in the fourth and final section of this report.

The proposed standards

In response to the Supplemental Report Language reproduced in Display 2 on page 3 above, on June 1, 1990, the State University submitted to the Commission several documents explaining its newly recommended library space standards (Appendix A), including the June 1987 report of its Library Advisory Committee, *Library Planning in the California State University*. In that document, the advisory committee presented a ten-year systemwide library plan for State University libraries that it intended to guide in planning and budgeting of the libraries through 1997. The plan contained missions and goals of the libraries, including the updating of library space standards, and it proposed changes to the standards. Display 4 on page 12 presents a side-by-side comparison of the old and proposed space standards along with proposed policies on the duration of library plans and compact storage.

The June 1 packet to the Commission also included the State University's *Justification and Cost Impact of the New CSU Library Policies and Standards* (Appendix A), which provides background and cost information on the effects of these changes. In the following paragraphs, the Commission reviews the updated library space standards for two of the library functions -- bookstacks and reader stations -- from a policy perspective and then with respect to cost. Not discussed below are space standards for technical processing and public service and multi-media and audio-visual library functions, whose standards are proposed to remain the same.

DISPLAY 4 Existing and Proposed Standards for California State University Libraries

Item	Existing Standard	Proposed Standard
Bookstacks (Collections)	Open stack shelves store 10 volumes per square foot; 25 percent of total collection area to house nonbook materials.	Open stack shelves store 10 volumes per square foot; 35 percent of open stack areas to house nonbook materials; on-site high density storage is required at all libraries with collections of over 400,000 volumes.
Reader Stations	Reader stations are provided for 20 percent of full-time-equivalent students; this space is apportioned with 90 percent at 25 assignable square feet per station and 10 percent at 35.	Reader stations are provided for 20 percent of full-time-equivalent students; this space is apportioned with 80 percent at 25 assignable square feet per station; 10 percent at 35, and 10 percent at 49.
Technical Processing and Public Service	Two hundred and twenty-five square feet per full-time-equivalent library staff member.	Same.
Multi Media and Audio-Visual Centers	Amount of space justified on a case-by case basis.	Same.
Length of Library Plan	Libraries planned for only three years -- the date of occupancy of the building plus two years.	Libraries planned for 11 years -- the date of occupancy of the building plus 10 years.

Source: Appendix A.

Bookstacks

Policy: Changing the space allotment for non-book library materials from 25 percent of *total* space to 35 percent of *open stack* space reduces the overall amount of space available for such materials. According to the State University's plans, open stacks will represent 70 percent of total stack space in its libraries, while compact storage facilities will comprise the rest. Whether traditional forms of high-density storage or the new Automated Storage/Retrieval System are employed for compact storage, this change in the bookstack space formula should result in a reduction in the total costs of this space. The State University estimates space savings of between 600 and 3,300 assignable square feet per library building, depending on the size of the materials collection.

Cost: The State University has not supplied cost information specific to this formula change in its reports, but since the new formula generates less square footage for this library function than did the old, a net cost savings should result. The State University will be storing increased nonbook materials in compact storage and also claims significant savings associated with the use of microform technology. These two factors point to the possibility of a lower need for nonbook stack space than in the past. Without having the background materials on the proposed standards to review, however, the Commission is unable to comment on the efficiency of

this change. Thus the Commission requests additional cost and background information on this proposed standard prior to giving a final recommendation on it.

The issue of how much bookstack storage space should be kept as open stack and how much should be used as compact is also in question. The 1985 consultant's report suggested that 40 percent of bookstack space be used for compact storage and 60 percent be kept as open stack. The current State University recommendations are for 30 percent in compact and 70 percent in open stack. In light of the open stack space savings associated with increased use of microform technology and the increase in compact storage of nonbook materials, the consultants' recommendation of 60/40 open stack-to-compact space may be appropriate.

Reader Stations

Policy: The new component of the reader station space formula is the allotment of 10 percent of the space for specific library equipment. In the past, space for library computers and telecommunications workstations was shared with space for graduate study carrels. (Study carrels are free standing cubicles where graduate students may work with their library materials in private; they are usually sized at 35 assignable square feet per seat.) Library equipment for student use, such as computer workstations, tends to be sizable. When coupled with space needed for books, periodicals, and other materials used by students, the amount of space required for this function is greater than that needed for study carrels alone. The addition of this new component increases the capital cost associated with library construction; estimates range from an increase of 2,160 assignable square feet at a small campus to 9,600 at a mid-sized campus and 12,000 at a large campus.

The Association of College and Research Libraries also publishes guidelines for use in designing space and utilization standards for college and university libraries (Appendix H). The Association is a division of the American Library Association and is comprised of academic and research librarians employed in college or university libraries. In general, it does not develop specific standards for library space by function, however, it has developed general guidelines for the components of space-generating formulas. Two of the State University's components of its proposed reader station standards (those for study carrels and graduate study carrels) are identical to those suggested by the Association and are consistent with the 1984 recommendations of HBW Associates and the Commission's 1984 research, and the other guidelines appear reasonable and consistent with national literature on this issue -- but the State University's library planning documents did not include background material that the Commission needs to evaluate how it constructed all three components of these proposed standards. Although the Commission is in general agreement with the proposed space guidelines, it must review the planning assumptions used in developing these space allowances. The Association guidelines contain the types of background information needed from the State University to fully evaluate its newly revised library space standards.

In addition, the Commission's recent study of space and utilization standards in higher education, *A Capacity for Learning*, led to recommendations for graduate teaching laboratory space in the State University and also formalized a long-standing agreement between the State University and the Department of Finance whereby the State University can receive 75 percent of the University of California's graduate student research space allowance, provided each project containing research space is individually justified. While these recommendations will not increase graduate student research space -- since they continue existing policy -- they will produce graduate teaching laboratory space for the first time.

Given these recommendations, the question arises of whether some of the functions historically provided under the library reader station formulas are now covered under these new space standards. Functionally, the two areas may be mutually exclusive, but it is also possible that the space provided under the new laboratory standards for graduate students in the State University may lessen space needs here.

Length of library plan

As State University officials point out in their report on cost, the planning horizon for higher education facilities normally spans from 10 to 12 years. Lengthening the time frame for which library plans

are developed eliminates the need for constant modification and updating, thus lowering overall planning costs. Given the increased need for effective collections management, including compact storage of some library materials and weeding of others, the longer time frame for planning is appropriate and consistent with other campus facilities.

High density storage

Changes in library planning in this area are described briefly in Display 3 above under the "Bookstack" space standard. However, high density storage is the major area of change in the new State University library plan and the one that proposes to generate the majority of cost savings associated with this plan. The Commission discusses many issues involved in high density shelving, labeled here as "compact storage," in Part Three of this report.

Summary

Having reviewed the material submitted by the State University and conducted research on standard academic library space planning nationwide, the Commission finds most of the State University's proposed changes to its library space generating formulas to be appropriate. Only minor revisions to then-present library space standards in the State University were recommended by the consultants in their 1984 and 1985 reports. The State University agreed with most of the consultants' findings and suggestions, but disagreed with the recommendation for a revision of the Technical Processing Public Service space standards. The most important research finding of the earlier consultant and Commission studies was the existence of substantially less library space (between 25 and 33 percent) than was justified under the space standards existing at that time. The State University's ten-year library plan seeks to rectify this space deficit, in addition to addressing other concerns raised in its own and other research on this subject.

In the recommendations of Part One, the Commission requested that the State University submit background detail on these standards for review. Many of the questions posed in that section of this report are requests for explanations of differences between its current library plan and policy changes suggested by HBW Associates -- the consultants hired by the State University in 1984 to study its campus libraries. While the Commission questions some of the decisions made by the State University in the formulation of its library plan, these questions are not meant to measure the system's current planning decisions word-for-word against those of HBW Associates. The 1984 recommendations of HBW Associates and the State University's 1987 library plan are consistent and complementary in most aspects. In those areas of difference, the State University's plan follows guidelines and practices that are consistent with library plans for academic libraries nationally. The point of those questions is to ask the State University to supplement its library plan with the detail and planning assumptions needed to evaluate and understand fully the proposed changes.

3 *Policy Questions for Further Study*

IN THIS section of the report, the Commission discusses four research questions for further study and resolution by the State University: (1) the existence of non-library (tenant) functions in State University libraries; (2) the efficacy of open stack area limits for campuses that reach their master plan enrollment ceilings; (3) State University policy on the type of compact storage to be used on its campuses, particularly its new "Automated Storage/Retrieval System;" and (4) the possibility of the State University utilizing both on-site and remote storage space for its lowest circulation library materials.

1. The issue of tenant functions

One issue not discussed above that continues to be unresolved is that of tenant functions in libraries. In the nine State University libraries studied by HBW Associates in 1984, and reaffirmed in the Commission that same year, a total of 106,098 square feet in the libraries was occupied by non-library services (Appendix F, page 7). In their response to the consultants' and Commission reports, State University officials stated: "CSU will review its policy on this matter and will endeavor to find appropriate alternatives for assigning such space, particularly before requesting new space for library functions" (Appendix G, January 31, 1985, letter to Senator Walter Stiern). In its 1987 library planning report, the State University describes this issue as follows (p. 18):

> Library space planning is predicated on full occupancy of official library space by library functions. The calculation of library space from the Space Standards does not nor shall it be construed to consider occupancy by tenants. It is a fact, however, that other [tenant] functions are assigned to library space. Typically, in the instance of the newly constructed or recently remodeled library, more space is available than immediately needed for the library function. Because this space is convenient, monitored, suitable for human occupancy, and is available, from time to time this space is often used by a non-library function. This impromptu occupancy is sufficiently common to be recognized under the name "tenant." However, it must be equally recognized that this use of space must be temporary and, therefore, subject to reclaim by the "host" library whose Space Standards justified the space in the first place.

The statements in that paragraph do not appear to be a change from the existing policies that have led to the occupation of substantial library space by tenant functions in the first place. The 1966 library space standards used by the State University did not take into account the space needs of non-library functions, nor did the space standards reviewed and recommended by HBW Associates in 1984. Thus, the statement that library space will not be designed with tenant functions in mind is only a restatement of a policy in existence for decades -- a policy that has resulted in the usurping of more than 100,000 square feet of library space in the nine State University libraries studied, with most likely an equivalent amount of space lost in the then ten campuses that the consultants did not visit.

The State University's 1987 library plan is a ten-year plan, meaning that a library building constructed in 1990 should contain sufficient space to house library functions into the year 2000. As an example, a library opened in 1990 may only be 70 percent occupied at the beginning and then expand into the remainder of the space over the 10 years of the library plan. This unoccupied space would be attractive to campus planners and academic officials, who need such flexibility to meet the space demands on their campuses. Many campuses are strained for space in facilities to house the various activities contained on a college campus. In this example, the 30 percent of library space in the new building not presently occupied by library functions would be a logical candidate for use by other campus functions.

Although these sorts of operational decisions are best left at the campus level, there is little reason to believe if past practice is any indicator of the future that the location of tenant functions in State University libraries will be as "temporary" as its new library plan states. Accordingly, a more definite policy on the relocation of tenant functions currently assigned to space eventually needed for library functions would alleviate the pressure that these other activities place on existing library space.

As recommended in Part One, the State University should survey its campuses to develop accurate estimates of the total amount of library space systemwide that is currently occupied by non-library functions. It should then develop timetables for the eventual relocation of non-library activities to space elsewhere on the campus. The assignment of space in library buildings exclusively for library functions will make for more accurate measurements of the effectiveness of new space standards proposed by the State University.

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2. Development of open stack area limits

The Supplemental Report Language quoted on page 2 above calls for an evaluation of the possibility of developing limits on the amount of open stack space allowed in State University libraries when the host campus has reached its enrollment ceiling, as listed in the campus master plan.

No examples have been found of library plans in colleges and universities nationwide that provide for these kinds of limits. Elizabeth Miller, Deputy Administrator of the Association of College and Research Libraries, has confirmed that there are no such standards in existence in college and university libraries. Further, when Texas and Colorado tried to establish such a relationship, their experiments failed due to opposition in the affected academic communities. The plans were quickly abandoned and more traditional collections limits were developed.

Despite these findings, the Commission agrees with the Legislative Analyst that, given the potential for unlimited expansion of library materials in open stack space, *some* type of space limit should be developed. Although there is an absence of actual research data on this idea, issues could be taken into account when designing a plan that ties the amount of space allotted to book collections to factors, such as student enrollment.

- First, the composition of academic programs and the level of graduate activities on a campus have a more direct impact on the need for open stack space than enrollments in general. In other words, some courses of study produce more of a need for immediate access to library research materials than do others. A plan that did not recognize the mix of programs on a campus would be inefficient as well as ineffective.
- Second, open space for books most often needs to be planned in close coordination with compact storage space for lower-circulation books. The two book holding areas are not mutually exclusive, and depending upon the type and location of a campus' compact storage system, open stack area space may need to be adjusted to accommodate more -- or fewer -- books. If open stack space planning is done without an eye towards compact storage space policy, inefficiency will most likely be the result.
- Third, library technology is changing rapidly. From increased microform usage and fully computerized, highly sophisticated card catalog systems to on-line public access systems and rapidly evolving information storage technologies, such as the State University's automated storage and retrieval system, library space usage planning is an area that changes in short periods of time. On the contrary, once a campus reaches its master plan enrollment limits, the challenge becomes how to house more students in less space than has been available in the past. The linking of these two rather disparate operations should result only from a most carefully thought-out process. Finally, an extensive consultation process is needed to assure that all of the people affected by such limits will be able to adapt to the change with a minimum of disruption. Campus faculty, library personnel, students, and other affected parties should have a voice in the design of such plans in order to make the transition to them an effective one.

As State University campuses develop and update their on-site compact storage facilities, the need for expanded open stack space should lessen. The Com-

mission feels that developing some limits on open stack space with compact storage in mind has merit. It would be impractical to implement such a major change in the middle of an existing ten-year library plan at the State University. However, it does seem appropriate for the State University to initiate a process for developing this sort of plan if the idea tying open stack space to student enrollments or some other factor is adopted as policy.

3. On-site versus remote storage

As discussed in Part Four below, it may not be practical for the California State University to displace any of its on-site compact storage facilities by utilizing the University of California's regional library storage facilities. However, the question arises as to whether these off-site facilities could be used to complement the State University's on-site compact storage systems. The State University campuses would have very few library materials that are of such low circulation they would qualify for storage in the University's remote facilities, but there may be some documents that do qualify. This has to do with the State University campus librarians weeding practices. In library terminology, "weeding" is the practice of culling collections records to find library materials that have not been used for a certain period of time and removing these documents from library shelves. If State University libraries contain documents that have not been used for a period of time equivalent to that threshold used by the University of California for consideration of remote storage, the State University should also seriously consider the remote storage of these documents. The feasibility of this idea rests, among other things, on a thorough examination of the current weeding practices of State University libraries and the development of systemwide guidelines on when libraries should place materials into compact or off-site storage.

The University of California considers books and other library materials candidates for remote storage only if they have not been accessed (checked out or otherwise used) in the last eight years (p. 171 of its library plan). Commission staff suggests that the State University consider developing similar systemwide criteria for the removal of low circulation materials from open stack space, and of even lower circulation materials from compact storage space, for submittal to remote storage. Systemwide guidelines on this aspect of collections management would lead to more efficient handling and disposition of campus library materials. Since the State University's library collection is geared towards instruction and not research, as is the case in the University, the holding thresholds for low-circulation documents could be shorter than that of the University.

It seems practical that if State University campus libraries presently store materials that have not been requested by users over the last eight years, these materials should at least be considered for storage in some other facility or be discarded entirely -- especially if the on-site compact storage space of a campus is limited. Utilizing the additional space provided by the University of California's two regional facilities would free up space in campus compact storage areas, thus lengthening the overall useful life of both the compact and open storage areas. It would also marginally increase the ability of the campuses to increase their total collections and house the additional, higher priority books on campus.

Another reason for the State University to consider utilizing space within the two regional libraries has to do with its plan to achieve "zero growth" collections in their campus libraries. "Zero growth" is a term used to describe a library collection that has a ceiling on the number of volumes it holds; thus, as the library gains a new volume it must discard an old one. The State University used it in its Invitation for Bid developed for the systemwide library space study in 1984; the entire invitation is shown in Appendix I:

> For example, three problem areas enumerated earlier each points to a requirement for zero growth, first, and as soon as possible, of the open stack (user accessible) collection, and then, for the total collection (page 5).

The current systemwide library plan does not discuss this goal, which suggests the need for further information. In particular, a subsequent discussion of the remote storage issue should analyze how it may help the State University achieve an overall "zero growth" for library collections on State University campuses.

4. Systemwide planning for on-site compact storage systems

Library projects on the Fullerton and San Diego campuses are currently moving through the capital outlay approval process to secure funding for planning, working drawings, and construction. The State University's "Capital Outlay Plan 1991-92 to 1995-96" includes nine more major library projects, whose costs will total almost $165 million (Display 5 below). All of these libraries plan to utilize more traditional versions of compact storage technology for library materials. Compact storage ordinarily consists of high-density storage of documents by putting them in strengthened bookstack shelves that are on movable tracks and that slide together or separate as access is needed to a given row. Presently, the California State University at Northridge is in the process of implementing its new Automated Storage/Retrieval System of compact storage. Briefly, this system is a multi-story structure that houses bins each of which stores several rows of books or other materials. As documents are requested, a computerized machine goes through the aisles in the structure and picks out the bins containing them; these bins are delivered to a desk, and then the needed documents are given to the persons requesting them. (This system is more fully described in "Robots in the Library: Automated Storage and Retrieval Systems," by John Kountz, the State University's Associate Director for Library Automation, that appeared in the December 1987 issue of the *Library Journal* and is reproduced in Appendix J.)

The State University plans to make the Northridge automated storage and retrieval system operational by the middle of 1991 and then operate it for two years to correct any flaws that are discovered before undertaking a final evaluation of the system's performance. After that evaluation is completed, the likelihood of its successful replication on other campuses will be considered. If the evaluation is positive, the State University will integrate the system into its library construction plans and request State funding for its implementation on the other campuses.

It is not clear how this will affect the Fullerton and San Diego library facilities currently being planned and constructed, as well as the nine other State University library projects planned for construction within the next six years. As these facilities are

DISPLAY 5 Library Projects Included in the Capital Outlay Plan, 1991-92 to 1995-96, of the California State University

Campus	Project	Starting Year	Cost
Chico	Renovate Miriam Library -- Phase Two	1995-96	$ 153,000
Dominguez Hills	Library Remodel -- Phase Two	1993-94	1,925,000
Fresno	Library Addition	1993-94	31,403,000
Humboldt	Griffith Hall/Library	1993-94	4,328,000
Long Beach	Library Addition	1992-93	15,958,000
San Bernardino	Library Renovation	1992-93	3,911,000
San Francisco	Library	1992-93	63,164,000
San Marcos	Library, Phase One	1991-92	20,679,000
Sonoma	Library Addition/Remodel	1991-92	23,025,000
Total, Nine Projects			$164,546,000

Note: The San Francisco project is based on 20,000 full-time equivalent enrollment, but the Trustees may raise San Francisco's Master Plan ceiling to 25,000. Project provides 347,000 assignable square feet in addition to 54,000 assignable square feet to be retained in existing libtrary, for a total of 401,000 assignable square feet of library space.

Source: Adapted from *California State University Capital Outlay Plan 1991-92 to 1995-96.*

built with traditional compact storage, that storage space would be anticipated to be used for at least the next 10 years after occupancy, as is the new planning horizon utilized by the State University. The Commission is concerned that the State University may construct five or more new campus libraries between now and the final evaluation of the Northridge prototype. If the evaluation of that system is positive and the State University determines that the construction of similar systems on other campuses is warranted, it would be unable to build these systems on the campuses listed in the present five-year Capital Outlay plan, since these facilities will have already been planned and constructed with traditional compact storage space and would be at the beginning of a new ten-year plan with the occupancy of the new buildings.

Given this, it would be poor policy to build traditional compact library storage space on a campus in 1993-94, for example, and then request the construction of an automated storage and retrieval system on that campus in, for example, the 1996 budget. Such a campus would probably be at its formula space limit and could not justify the need for new space. Further, according to the construction specifications for the automated storage and retrieval system, the square footage needed to construct traditional compact storage systems is approximately three times greater than that needed to build it. As a result, campuses that wanted to retrofit their existing compact storage space to accommodate the new system could not do so, since they would already be substantially over-built in library space. In addition, staff of the Legislative Analyst's Office notes that retrofitting existing traditional compact storage space to accommodate the new system is not feasible, since the costs and engineering logistics of such a project would be prohibitive.

Given the State University's current capital outlay plans and its present timeline for operation and evaluation of the Northridge system, the only campuses on which the new system could be built would be those that have not had new libraries constructed on them within the past eight to ten years, since only those campuses would be at or towards the end of their current plans and in line for construction of new space.

Based on the Commission's reading of the State University's library plans and five-year capital outlay plans, further use of an automated storage and retrieval system beyond Northridge is not reflected in its facilities construction plans. Thus, the Commission must assume that even if the system proves to be successful, the State University will not construct it on any campuses other than Northridge until after the year 2000. If the State University does have assumptions for success of the Northridge prototype and its replication elsewhere -- those assumptions should be reflected in campus library plans and systemwide capital outlay plans.

Automated storage and retrieval systems have been used by industry for more than a decade, and its application to library compact storage has been examined in several books and articles beyond that of Kountz. Most of the research on it support the concept, and there is a strong likelihood that the Northridge system will eventually succeed. Since the State University's 1987 library plans do not discuss the scenario of its being replicated elsewhere, more information clearly is needed. If State University officials plan on such replication (assuming the system succeeds), the Commission suggests that they reconcile their future plans for construction of compact storage space on campuses over the next five to eight years to account for the possible inclusion of automated storage and retrieval system technology.

The State University could take some actions to avoid constructing compact storage space for which it may, later in its ten-year plan, request replacement with automated storage and retrieval systems. One option involves temporarily utilizing excess open stack space for compact storage, while delaying the construction of compact storage space until after a decision is made on the Northridge experiment. As was stated earlier, State University libraries are designed with sufficient space for library operations for 10 years beyond the date of occupancy, which means that a large portion of the building will not be occupied at the onset of operations. In planning the construction of future libraries, the State University could dedicate the presently vacant open stack space to compact storage for the first three or four years of operation. Then, after a decision is made on the automated storage and retrieval system or some other compact storage system, library materials stored temporarily in the excess open stack space would be relocated into whatever compact storage system is approved and constructed by the segment.

Some significant concerns exist with this approach, however:

- First, from a planning and construction standpoint, it might be impractical to use vacant open stack space for compact storage purposes.
- Second, this approach would make the anticipated expansion of bookstacks, reader stations, and other library functions into that open stack space fully subordinate to the timing of the compact storage decision, as well as to future construction of separate compact storage facilities.
- Finally, it is possible that once a final decision is made on the compact storage technology to be used, State monies and support for construction of that new system might not be forthcoming -- State officials may view the compact storage issue as having been permanently solved with this temporary relocation.

An example of just how long seemingly temporary solutions can stay in effect occurred with the adoption of Supplemental Report Language for the 1973-74 Budget Act that proposed to increase the utilization standard for class laboratories to a 70-hour week until an anticipated future study on this issue was completed. This planned study was not done, and the "temporary" adjustment stood for the next 18 years.

Another option would be for the State University to find existing space for compact storage of low circulation library materials on campuses anticipating new libraries within the new few years. The new libraries could then be planned either without a compact storage component or with a small amount of space for compact storage until the State University makes a final decision on the Northridge system or other compact information storage technology. By utilizing existing space on the campus, the overall costs of compact storage would be significantly lower than constructing new space. Once a compact storage system is decided upon, the library materials could be transferred to their permanent location in that storage facility. Again, the danger in not including compact storage facilities in the library's initial construction plans is that all necessary parties might not agree to adding this component to the building years later.

4 Remote Versus On-Site Storage

IN ITS *Analysis of the 1990 Governor's Budget*, the Office of the Legislative Analyst recommended adoption of the following Supplemental Report Language for the California State University:

5. **Regional Library Plan.** It is legislative intent that the University of California and the California State University cooperatively plan to increase the use of the Southern and Northern Regional Libraries for CSU collections The segments shall jointly submit this plan to the Legislature by March 1, 1991, including identification of the (1) potential savings to the state resulting from increased CSU use of the regional libraries and (2) extent to which these potential savings would be realized under the plan.

In this final section of the report, the Commission examines the many issues that are involved in discussions of remote storage and on-site compact storage of library materials. In addition to discussing the cost and policy implications of the State University utilizing space in the University's regional libraries, it presents an alternative proposal for further considerations and study. Finally, the Commission discusses potential problems with the State University's present capital outlay plans for the development of traditional compact storage systems in light of future plans related to the nontraditional compact storage system being implemented at Northridge.

Background on remote storage

The University of California operates two regional library storage facilities -- the northern one in Richmond, and the southern one on the University's Los Angeles campus. Those facilities were developed after extensive planning dating back to 1977. Their construction was scheduled to begin in the early 1980s but was delayed by the economic recession that hit the State at that time.

The types of materials stored in these regional storage facilities include regular books, large collections of periodicals, microforms, and maps and other nontraditional materials. University campuses consider placing a document in remote storage if it has not been requested for use in the last eight years. University campuses may also send more frequently requested materials to the regional libraries. Display 6 on page 22 shows the library volumes deposited in the Southern Regional Library Facility from University campuses for the three prior fiscal years, with an estimate for the present year and projections for three future fiscal years.

Currently, the Richmond regional library storage facility has the capacity to store almost 5.5 million documents, with future expansion planned to increase this capacity. It is now approximately 60 percent full. The first phase of construction of the Southern Regional Library Facility on the UCLA campus has been completed, and this facility now has the capacity to house more than 3.4 million documents and about half full. When completed, it will have the capacity to store 11 million library documents and will contain almost 200,000 square feet.

Below, the Commission discusses two questions on the subject of whether or not it is practical for the State University to utilize these remote library facilities of the University:

1. Is the State University's use of these facilities for storing its low-circulation materials more cost-effective than using other forms of on-site compact storage; and
2. Is the sharing of the facilities by the two segments a sound approach from the standpoint of State policy?

Cost comparisons

In response to Commission requests, systemwide officials of both the State University and the Univer-

DISPLAY 6 *Actual and Projected Deposits to the Southern Regional Library Facility of the University of California, 1987-88 Through 1993-94, in Volume Equivalents, by Campus*

Year	Irvine	Los Angeles	Riverside	San Diego	Santa Barbara	Total
1987-88 (Actual)	5,677	376,138	0	0	0	381,815
1988-89	90,870	456,205	39,679	6,636	35,858	638,248
Subtotal	105,547	832,343	39,679	6,636	35,858	638,248
1989-90 (Scheduled)	38,850	624,900	21,600	34,575	30,075	750,000
1990-91 (Projected)	25,900	416,600	14,400	23,050	20,050	500,000*
1991-92	15,000	338,719	26,440	58,579	33,005	471,743
1992-93	15,000	338,719	26,440	58,579	33,005	471,743
1993-94	14,703	338,719	26,441	58,581	33,007	471,451
Total	215,000	2,890,000	155,000	240,000	185,000	3,685,000

* Projected processing capability of the Southern Regional Library Facility, based on current procedures and equipment.

Note: Based on estimated capacity of 3.6 million volume equivalents, full at the middle of 1993-94 or December, 1993.

Source: University of California, Office of the President, October 1989.

sity of California have submitted construction cost information on various library facilities. Excerpts from these data are reproduced in Appendix K. After reviewing these documents and interviewing officials of both segments, the Commission has determined that no definitive conclusions about comparative costs can be drawn from these data. The costs of the State University's on-site storage facilities and the University's remote library storage facilities are difficult to compare not only because of incompatible data but because the planning assumptions built into the construction of these facilities are so basically different as to render straight building-to-building comparisons of construction costs impossible. For example, the University's regional libraries take advantage of substantial economies of scale when determining "unit" costs because of their capacity to house several million books -- the unit of measurement. In planning their on-site compact storage facilities, the State University does not enjoy these economies of scale since it is impossible for them to build a library facility for one campus that houses that many volumes -- even the largest compact storage system houses less than one million volumes.

Another area of non-comparability between the two segments is construction costs that do not relate specifically to the building of the library structures. The costs of site development, providing utilities, the types of shelving planned for the buildings, movable equipment unique to the structure, and general overhead expenses vary greatly between the two types of structures and these differences are again reflected in the planning for off-site versus on-site libraries. The University's regional storage libraries are constructed with shelving built directly into the walls and floors of the buildings. Most compact library storage systems do not entail this, but have special equipment needs (automated, movable rows of bookshelves) foreign to the more warehouse-comparable off-site storage structure.

Substantial cost differences exist even between apparently similar structures, whether on-campus or off, depending on their location. One example is the lower costs of site development at the University's

Richmond storage facility as opposed to the facility at UCLA. The Richmond facility was built in an existing industrial area and needed very little site preparation, grading or leveling of the ground, construction of new roads or infrastructure, or extensive design and construction to receive utilities. Construction of the UCLA facility generated much higher levels of most of those costs, in addition to substantial -- and expensive -- environmental mitigation measures. Buildings constructed at locations such as San Francisco State University or the University of California, San Francisco, could experience much the same situation, as opposed to construction at Riverside or at California State University, Stanislaus, in Turlock. Construction at the former locations would probably necessitate more expensive and time-consuming environmental impact studies and modifications to designs, higher labor wage rates for workers building the structure, and higher overhead costs in general.

In summary, insufficient compatible cost data exist on the University's remote and State University's on-site compact storage facilities to make meaningful comparisons. The two segments are currently meeting to discuss usage of the University's remote facilities by the State University, as called for under Supplemental Report Language to the 1990 Budget Act. The Commission requests that comparative cost data be developed -- to the extent possible -- from these discussions. The Commission believes that a decision regarding this issue should be based on those data as well as the programmatic, segmental, and State policy considerations discussed below.

Policy considerations

The Master Plan guarantees that the University of California and California State University will be different educational systems. Although both offer undergraduate education and first-level graduate study, the University has a substantial research component in its mission. The Governor's Budget describes the two systems as follows:

> The University of California [is] the primary State-sponsored academic agency for research with exclusive jurisdiction in public higher education over instruction in the professions of law, medicine, dentistry, and veterinary medicine. Sole authority is also vested in the university to award doctoral degrees in all fields, except that joint doctoral degrees with the California State University may be awarded. The university provides faculty time and essential libraries, laboratories, and other resources necessary to further faculty research, which is intimately connected teaching in the university -- especially at the advanced graduate level.
>
> All [State University] campuses, as multipurpose institutions, offer undergraduate and graduate instruction for professional and occupational goals as well as broad liberal education. The program objectives of the California State University [include]: To provide instruction in the liberal arts and sciences, the professions, applied fields which require more than two years of college education, and teacher education -- both for undergraduate students and graduate students through the master's degree.

To carry out their respective missions, the two segments have developed different types of academic and institutional support systems, including their libraries:

- The University of California has developed a library system to satisfy both its instructional and advanced research needs. Thus the collection it houses include diverse, current materials and comprehensive, historical material necessary for basic scholarly research. Materials supporting this latter component are often stored in the University's remote library storage facilities. The University's systemwide library plan, adopted in 1977, requires each campus to commit a set number of volumes annually to the system's two regional storage libraries. Campuses that do not meet their "annual deposit rate" are prohibited from asking for additional on-site library storage space. University campuses use compact storage systems on a very limited basis. Display 7 on page 24 shows the rate at which the University anticipates its five campuses that utilize the UCLA facility will deposit volumes there, as well as the space available for documents from non-University libraries.

DISPLAY 7 *Anticipated Fill Rate for Phase 2 of the Southern Regional Library Facility of the University of California, 1994-95 Through 2008-09, in Volume Equivalents, by Campus*

Year	Irvine	Los Angeles	Riverside	San Diego	Santa Barbara	Film and Television Archive	Non-University Libraries	Cumulative Total
1994-95	10,000	90,000	10,000	15,000	10,000	93,333	10,000	238,333
1995-96	10,000	90,000	10,000	15,000	10,000	93,333	10,000	476,666
1996-97	10,000	90,000	10,000	15,000	10,000	93,334	10,000	715,000
1997-98	10,000	90,000	10,000	15,000	10,000	93,333	10,000	953,333
1998-99	10,000	90,000	10,000	15,000	10,000	93,333	10,000	1,191,666
1999-2000	10,000	90,000	10,000	15,000	10,000	93,334	10,000	1,430,000
2000-01	10,000	90,000	10,000	15,000	10,000	93,333	10,000	1,668,333
2001-02	10,000	90,000	10,000	15,000	10,000	93,333	10,000	1,906,666
2002-03	10,000	90,000	10,000	15,000	10,000	93,334	10,000	2,145,000
2003-04	10,000	90,000	10,000	15,000	10,000	93,333	10,000	2,383,333
2004-05	10,000	90,000	10,000	15,000	10,000	93,333	10,000	2,621,666
2005-06	10,000	90,000	10,000	15,000	10,000	93,334	10,000	2,860,000
2006-07	10,000	90,000	10,000	15,000	10,000	93,333	10,000	3,098,333
2007-08	10,000	90,000	10,000	15,000	10,000	93,333	10,000	3,336,666
2008-09	10,000	90,000	10,000	15,000	10,000	93,334	10,000	3,575,000
Total	150,000	1,350,000	150,000	225,000	150,000	1,400,000	150,000	3,575,000

Source: University of California, Office of the President, October 1989.

- The California State University's library collections consist of books, periodicals, microforms, and other materials that are geared substantially more towards undergraduate teaching than towards research. In addition to providing reference, referral, and interlibrary loan services to faculty and students, the campus libraries provide services to other State University campuses and to non-students from their local communities. As a result, the ability to browse documents shelved in the open stack area is an important factor in State University's library planning. The usage patterns of these materials -- that is, the number of times they are requested, checked out, or photocopied for further use -- are greater than is the case in a more research-oriented library.

Given the State University's emphasis on open-stack collections, only materials destined for on-site compact storage would be appropriate for storage in any remote facilities. The main cost savings anticipated from the State University's utilization of existing space in the University's regional facilities would be from lessening the need for more storage space on its campuses. Presumably, using these existing off-site facilities would lengthen the life of its campus libraries and thus lower the overall construction costs to the State for campus libraries. This assumes that the usage pattern for State University library materials stored in the University's regional facilities would be equivalent to that of the University's low circulation materials, but this assumption is not necessarily accurate. State University officials note that they need to access most of the materials stored in compact facilities at a much greater rate than does the University for its materials.

Arguments against remote storage

Even within the research university library community, there is not uniform agreement on the efficacy of remote storage of low-demand library mate-

rials. Michael Gorman, the former director of general services for the University of Illinois Libraries at Urbana-Champaign, wrote in a 1987 article advocating compact storage for large research libraries, "remote storage is the ugly stepchild of modern librarianship. Not even those who practice it can be said to be proponents" (page 24). He went on to raise questions about the costs of remodeling existing facilities for on-site compact storage versus construction of stand-alone remote facilities, the selection process of materials to be sent into off-site storage, and the practicality of transporting these materials.

Aside from the questions about cost discussed above, one of the main arguments against remote storage is the time involved in providing access to materials after they have been requested. However, no State University library currently has a policy of providing immediate access to materials stored in its compact facilities. Since the University can usually deliver remotely stored documents to users within one or two days of a request, the time difference for supplying requested remotely stored materials or compact stored materials on campus is negligible. Because materials not stored in open stacks are, by definition, of low priority for quick access by potential users, there is no compelling reason to provide on-demand access to them, whether they are stored in on-site compact or remote storage.

Another argument against off-site storage is the operational difficulty of transporting and processing large numbers of documents to and from remote facilities. The transportation costs of returning these books back-and-forth between the campuses and the regional libraries could by itself rapidly consume cost savings associated with constructing on-campus storage systems. These transportation costs do not take into account the costs associated with the restructuring of campus and systemwide bibliographic card-catalog systems, nor do they measure the lost time and productivity that results from having to order library materials from the regional libraries. In the cases of State University campuses in Arcata or Fresno, these facilities would be located hundreds of miles away.

Unlike the University, however, only a very small percentage of State University campus' library materials would likely be sent into remote storage. These materials would have had usage patterns so low that they did not merit space in the on-campus compact storage systems. It is not very likely that there would be a sudden rush to check out these books that would overload the transportation system for these facilities. As such, the logistics of transporting requested documents from the regional facilities would not be overwhelming, though projected unit costs for transport would increase as volume decreases. Another logistical difficulty could be providing insurance for documents stored off-site; the magnitude of this problem is unknown.

The one other significant area of concern would be the process of redesigning the computerized bibliographic system that recognizes the location of campus library materials in three distinct collection locations. The process of retooling this complex computer system may be difficult and might not be operationally feasible. In Part One of this report, the Commission asked State University officials to study the practicality of integrating references to materials stored in the regional libraries into their current cataloging system. As Display 7 shows, at least for the near future only a very small number of library documents from State University campuses could be stored in the University's Southern Regional Facility. The Commission notes that it could be prohibitively costly and time-consuming to redesign entire card catalog systems for 20 separate campuses to account for the few hundred, or even the few thousand, documents from each campus that might be stored in the regional facilities.

Impact on library users

The entire issue of on-site versus remote compact storage should be kept in perspective as it relates to the library user. An axiom widely cited for libraries is that 20 percent of a library's books account for 80 percent of its circulation. This supposition has been documented in several studies, including Harold Ettelt's 1988 *Does the 80/20 Rule Apply to Books?* Ettelt used a collection development survey on a sample of 4,213 books, 799 of which (19 percent) accounted for 79 percent of the circulation during 1987. He notes that 1,053 (25 percent) of the books in the sample accounted for virtually 100 percent of the circulation for that year. As such, resolution of the compact storage issue will impact a very small

section of the State University campus libraries' overall clientele.

Summary

In conclusion, the Commission believes that mandating State University participation in the University's remote storage facilities in place of on-site compact storage systems is not sound State policy. Nonetheless, these two remote regional library storage facilities are available for use by the State University and other institutions. Thus the Commission recommends an option that will *allow* but not *force* the State University to use those facilities for its lowest circulating materials.

References

California Legislature. *Supplemental Report Language to the 1991 Budget Act.* Sacramento: The Legislature, 1990.

Association of College and Research Libraries. "Standards for College Libraries, 1986: The Final Version Approved by the ACRL Board of Directors." Prepared for the College Library Standards Committee, Jacquelyn M. Morris, Chair. *C&RL News*, March 1986, pp. 189-200 (reproduced in Appendix H below).

California Postsecondary Education Commission. *Comments on the California State University's Library Space Study: A Report to the State University in Response to Budget Control Language in the 1984-85 Budget Act.* Commission Report 85-3. Sacramento: The Commission, January 1985 (text reproduced in Appendix F below).

--. *Comments on the California Community Colleges' Library Space Study: A Report to the Board of Governors of the California Community Colleges in Response to Budget Control Language in the 1984-85 Budget Act.* Commission Report 85-28. Sacramento: The Commission, April 1985.

--. *A Capacity for Learning: Revising Space and Utilization Standards for California Public Higher Education.* Commission Report 90-3. Sacramento: The Commission, January 1990.

The California State University. "Invitation for Bid, Systemwide Labrary Space Study, August 3, 1984. (IFB-LA-84-001)." Long Beach: Office of the Chancellor, The California State University, August 1984. (Reproduced in Appendix I below.)

--. *Library Planning in the California State University; 1986/87-1996/97.* Long Beach: Office of the Chancellor: Library Affairs, June 1987 (Executive Summary reproduced in Appendix A below).

--. *Justification and Cost Impact of the New CSU Library Policies and Standards.* Long Beach: Office of the Chancellor, June 1990 (Reproduced in Appendix A below).

--. *Capital Outlay Program Planning for CSU Libraries: Policies, Standards, and Procedures.* Long Beach: Division of Library Affairs and Division of Physical Planning and Devlopment, The California State University, June 1990 (reproduced in Appendix A below).

Ettelt, Harold. "Does the 80/20 Rule Apply to Books?" Duplicated Report. Hudson, N.Y.: Columbia-Greene Community College, 1988 (available from ERIC as ED 298 963).

HBW Associates, Inc., Library Planners and Consultants. *Systemwide Library Space Study for Period 1984-2004, Prepared for Office of the Chancellor, The California State University.* Dallas: HBW Associates, November 1984 (reproduced in Appendix E below).

--. Letter to Tom Harris, Division of Library Affairs, The California State University. Dallas: HBW Associates, January 21, 1985 (reproduced in Appendix G below).

Gorman, Michael. "Moveable Compact Shelving: The Current Answer." *Library Hi Tech*, 5:4, Winter 1987, 23-26.

Kountz, John. "Robots in the Library: Automated Storage and Retrieval Systems." *Library Journal*, 112:20, December 1987, 67-70.

Office of the Legislative Analyst. *Analysis of the Budget Bill for the Fiscal Year July 1, 1984, to June 30, 1985: Report of the Legislative Analyst to the Joint Legislative Budget Committee.* Sacramento: The Office, 1984.

--. *Analysis of the Budget Bill for the Fiscal Year July 1, 1984, to June 30, 1985: Report of the Legis-*

lative Analyst to the Joint Legislative Budget Committee. Sacramento: The Office, 1990.

University of California, Office of the President. *Southern Regional Library Facility, Phase 2 Addition*. Oakland: Office of the President, October 1989.

Appendix A State University Submission, June 1990

THE CALIFORNIA STATE UNIVERSITY

BAKERSFIELD • CHICO • DOMINGUEZ HILLS • FRESNO • FULLERTON • HAYWARD • HUMBOLDT • LONG BEACH
SACRAMENTO • SAN BERNARDINO • SAN DIEGO • SAN FRANCISCO • SAN JOSE • SAN LUIS OBISPO

LOS ANGELES • NORTHRIDGE • POMONA
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OFFICE OF THE CHANCELLOR
213/590-

June 1, 1990

Dr. Kenneth B. O'Brien
Executive Director
California Postsecondary Education Commission
1020 12th Street, 3rd Floor
Sacramento, California 95814-3985

Dear Dr. O'Brien:

As part of the FY 1990/91 Budget Bill the Legislature has proposed including the following supplemental report language regarding the California State University planning for libraries.

"It is the understanding of the Legislature that by June 1, 1990, The California State University (CSU) shall have submitted The CSU revised space standards for CSU libraries to the California Postsecondary Education Commission (CPEC) for commission review. The submittal should include supporting justification and cost implications of any proposed changes and consider, among other matters, (1) increased on-site compact storage, (2) provision for reader stations with computer/telecommunication capabilities, including their relationship with the Campus Information Resources Plan, and (3) a ten-year planning target date beyond building occupancy. In addition as part of this review CSU and CPEC shall evaluate the efficacy of open stack area limits for campuses that reach their master plan enrollment ceilings. It is the intent of the Legislature that CPEC complete its review and transmit its recommendations to the Joint Legislative Budget Committee, the legislative fiscal committees, and the Department of Finance by November 1, 1990 in order that the new standards may be considered and acted upon by the Legislature during deliberations on the 1991/92 budget."

Although this supplemental report language has not become official, we agreed with the Legislative Analyst and Department of Finance representatives to forward our response as of June 1, 1990. The intent is to give CPEC more time to review the matter.

In partial compliance with this language, please find enclosed the following documents:

- Library Planning in the California State University: 1986/87-1996/97
- CSU Capital Outlay Program Planning for Libraries: Policies, Standards and Procedures
- Justification and Cost Impact of the New CSU Library Policies and Standards

These three documents should provide the California Postsecondary Education Commission (CPEC) with the necessary information to review and make its recommendations to the Joint Legislative Budget Committee and others about the appropriateness of these new CSU Library policies and standards.

The budget language also calls for a shared evaluation of the "efficacy of open stack area limits for campuses that reach their master plan enrollment ceilings." As you will observe in reading the enclosed documents the new policies and standards do not specifically address this issue. To properly pursue this issue we suggest an early meeting to establish the methodology to be used to gather and analyze information.

For further information and assistance, please feel free to contact Dr. Thomas C. Harris, Director of Library Affairs, 213-985-9595. He will provide you additional information and answer your questions.

Sincerely,

John M. Smart
Vice Chancellor
University Affairs

JMS:TWW:fbmac
Enclosures

cc: Mr. Gerald E. Beavers
Ms. Sheila M. Chaffin
Mr. D. Dale Hanner
Dr. Thomas C. Harris
Dr. Lee R. Kerschner
Dr. Ellis E. McCune
Mr. Jordan W. Montano
Dr. Anthony J. Moye
Dr. Thomas W. West

LIBRARY PLANNING IN THE CALIFORNIA STATE UNIVERSITY

1986/87-1996/97

JUNE 1, 1987

Office of the Chancellor: Library Affairs
The California State University

LIBRARY PLANNING

IN

THE CALIFORNIA STATE UNIVERSITY

1986/87-1996/97

June 1, 1987

Office of the Chancellor: Library Affairs

The California State University

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FOREWORD

Library Planning in the California State University

The following document is the product of more than two years' work. Included among those directly involved in the development of the plan are library directors, academic senate members, selected faculty and campus administrators as well as computer center personnel and directors, librarians and Chancellor's Office Staff.

The plan was outlined at the Arrowhead Conference in 1985 and completed at the Sacramento Conference in 1986. During that time it was assigned to a drafting committee. The work of the drafting committee was reviewed three times by the systemwide Library Advisory Committee (LAC) and the library directors before it was presented in official draft form for a final line by line review and approval. It was then reviewed by division heads and vice chancellors in the Chancellor's Office and shared with the presidents via AA 87-04 and LA 87-02 on January 14, 1987 and the Statewide Academic Senate. The plan was enthusiastically endorsed by the Senate on May 1, 1987.

This final draft incorporates the recommendations and suggestions made by the Library Advisory Committee and the Statewide Academic Senate. In addition, and in keeping with recommendations of academic vice presidents, it includes, where appropriate, the conclusions made by the Task Force on Library Staffing. Finally, it also reflects additional alterations made as a result of consulting with presidents.

EXECUTIVE SUMMARY

The CSU libraries have entered an environment conditioned by explosive changes in information technology, and by a growing need to make higher education meaningful and accessible to an increasingly multi-cultural, multi-ethnic constituency.

This ten-year, systemwide library plan for CSU libraries is intended as a guide to planning and budgeting in this new environment. It will be reviewed in depth in five years.

Authority for establishment and operation of CSU libraries comes from the California Education Code and Trustees' resolutions. The goals set forth in this plan are directly supportive of the 1986 Trustee-approved goals for the CSU (see Appendix A).

The mission of CSU libraries is to support CSU teaching and research.

The goals of the CSU libraries are:

Goal I. Provide instructional and research services to students and faculty. Insure that students and others can find information in printed materials and in the wide range of formats associated with new information technology by providing quality group and individual instruction in the nature and use of libraries and information resources. Include specialized, research-oriented instruction for graduate students and faculty.

Objective 1: Develop the ability in students to retrieve, process, evaluate, and use information as a basic skill.

Objective 2: Develop in students, through appropriate instruction, the ability to articulate their information needs.

Objective 3: Enable students and faculty to become competent users of automated information systems, including direct interaction with databases of scholarly information.

Objective 4: Provide responsive, effective service for a diverse population in transition and recognize and value the distinctive history, culture, and mission of each campus.

Goal II. Develop information resources. Provide collections, access to other collections, and data linkages that insure the timely provision of scholarly information in all formats.

Objective 1: Develop collections of recorded information in appropriate formats to provide support for the particular instructional and research mission of each campus.

Objective 2: Assure collections of high quality through effective collection management.

Objective 3: Obtain informational materials through interlibrary loan and other cooperative arrangements.

Goal III. Make use of new technology and knowledge in CSU library programs in order to raise the level of library services and operations and to improve their effectiveness.

Objective 1: Provide appropriate academic computing services, drawing upon the various computing resources of the campus, including computer centers and telecommunications.

Objective 2: Undertake greater involvement, along with computer services staffs, in telecommunications planning and applications as they relate to the transfer of information in a timely and economic manner in support of teaching and research.

Objective 3: Further develop electronic information systems and services.

Objective 4: Enhance the effectiveness of CSU library resources and services through sponsored research.

Goal IV. Update CSU library standards.

Objective 1: Develop and maintain facilities that will provide CSU students and faculty timely access to scholarly information. Provide space for adequate and appropriate reader stations and staff work areas.

Objective 2: Prepare a standard for collections of informational materials in all formats.

Objective 3: Increase levels of staffing, particularly in librarian-level positions, in line with the recommendations and conclusions of the Task Force on Library Staffing. Increase support for staff development and training in the light of environmental and technological changes.

Objective 4: Consider standards for equipment in keeping with current information transfer technologies.

Objective 5: In consultation with appropriate concerned entities, develop telecommunications standards to accommodate intercampus data linkages.

Objective 6: Develop a standard unit of measure for nonbook informational materials.

Goal V. Develop cooperative and community services within the framework of interinstitutional programs with other libraries and information centers.

Objective 1: As support permits, encourage CSU libraries to seek, with other local libraries, ways to share databases and information resources.

Objective 2: Participate in CSU networking and cooperative agreements with libraries and information centers in California, nationally, and abroad.

Objective 3: Develop more cooperative/consultative efforts with the California State Library.

The California State University

OFFICE OF THE CHANCELLOR • LOS ALAMITOS LOCATION • P. O. BOX 3842 • SEAL BEACH, CALIFORNIA 90740-7842

CAPITAL OUTLAY PROGRAM PLANNING FOR CSU LIBRARIES: POLICIES, STANDARDS AND PROCEDURES

Issued by the

Division of Library Affairs

and the

Division of Physical Planning and Development

Spring, 1990

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CSU Capital Outlay Program Planning for Libraries: Policies, Standards, and Procedures

I. INTRODUCTION

This document provides guidance for CSU library space and facilities planning and sets forth the appropriate space standards and procedures to be used for library facility construction on any CSU campus. The policies, standards, and procedures in this document are based upon the Library Planning in The California State University: 1986/87-1996/97, a report submitted to the Board of Trustees in November 1987 and accepted as the policy framework for future development of the library capabilities throughout the CSU.

The purposes of this document are to: (1) set forth the Board of Trustees policies to be used in the Capital Outlay Program for CSU libraries ; (2) articulate the appropriate space standards; and (3) provide the procedures and criteria to be used by the CSU campuses in planning and calculating the physical dimensions of future CSU library facilities.

II. POLICY GUIDELINES

The following policy guidelines establish the planning horizon to be used in development of plans for new facilities; the types of space to be included in planning for and alteration of facilities construction; the appropriate uses of standards and official data in calculating space needs for facilities; the need to develop and manage the collections; and, local campus development of its library resources to meet academic program needs. In part, these policy guidelines are derived from Library Planning, pages 15-19, and in part they are the normal extension and expansion of existing policies, standards, and practices.

A. Planning Horizon. When library facilities and additions are planned for a CSU campus in the Capital Outlay Program, the size and scope of the project shall address the amount of space needed to adequately house the library's collections, its non-book material,

reader stations, and technical processing and public service areas. The scope of the project is to be based upon 10 years of collections growth past the anticipated occupancy date of the new facility.

B. Types of Space. The CSU systemwide library standards, herein described, are to be applied in determining the amount of space in library facilities to serve the needs of students and faculty and to maintain information in a diverse range of formats. Space is also to be provided for library staff to organize the information and to transmit it to students and faculty, and to allow for adequate growth of the collections to accommodate reasonable amounts of change in student, faculty, and staff populations.

C. Calculating Needs. The library space calculations and projections used in a project in the Capital Outlay Program are to be based upon official data maintained by the Chancellor's Office. Space for the collections is to be based upon the appropriated number of VOLM (VOLM is an economical number of measure used in the approved annual appropriation formula). Reader space is to be based upon the official number of FTES (FTES is the number of full time equivalent students used as part of the annual budgeting and Capital Outlay Program processes). Library staff calculations are to be based upon the appropriated number of FTELS (FTELS is the number of full time equivalent library staff approved in the annual forecasted budget).

D. Collections Management. Each campus which undertakes a library project within the Capital Outlay Program shall create and then implement a campus collections management plan. The plan shall encompass the same life cycle as the project.

E. Campus Self-Determination. The acquisition, selection, and allocation of library collections and related information shall continue to be vested with the individual CSU campus to insure compatibility with the academic mission.

III. SPACE STANDARDS

There are four types of space that must be planned for as part of a Capital Outlay Program library project, including space for the collections, non-book materials, reader stations, and technical processing/public service areas. The following space standards are to be used in planning and scoping CSU library facilities.

A. Collections Space. The space for the collections is to be comprised of "open stacks" and "on-site high density shelving." The amounts of each type of collections space will change as a campus' collections grow.

1. Open Stacks: Space for the collections contained in "open stacks" areas are to be planned at the 10:1 ratio. (Ten volumes per one assignable square foot.)

2. On-Site High Density Shelving: Space for library materials not housed in "open stack" areas are to be designated as "on-site high density shelving" (OS/HD) that are calculated at 35 volumes to the assignable square foot of library space. Campuses are to plan "on-site high density shelving" space in future library facilities (unless already provided in their existing library facility) using the following criteria:

Level One - where the projected library collections--books, bound periodicals and serials--will be under 400,000 volumes then the entire collections may be planned for the "open stack" mode without any "on-site high density shelving" access space provided.

Level Two - where the projected library collections--books, bound periodicals and serials--will be between 400,000 up to 600,000 volumes "on-site high density shelving" access space shall be provided at the rate of

45% of the annual growth rate of the collections starting from the 400,000th volume.

Example: a collection that grows from 400,000 to 600,000 volumes will provide 90,000 volumes in "on-site high density shelving" space (45% of 600,000 minus 400,000 equals 90,000 volumes).

Level Three - where the projected library collections--books, bound periodicals and serials--will be between 600,000 up to 1,000,000 "on-site high density shelving" space shall be provided for at a rate of 50% of the annual growth of the collection starting from the 600,000th volume.

Example: a collection which grows from 600,000 volumes to 1,000,000 volumes will provide 290,000 volumes in "on-site high density shelving" space (50% of 1,000,000 minus 600,000 equals 200,000 plus 90,000 from the step at level two.)

Level Four. Where the projected collections-- books, bound periodicals and serials--will be more than 1,000,000 volumes, a minimum of 30% of the entire collection shall be accommodated in a "on-site high density shelving" space environment (30% of 1,000,000 volumes equals 300,000.)

B. Non-Book Material. Space for non-book library material are to be calculated at 35% of the space allocated for "open stack" collections.

C. Reader Stations. There are three types of reader stations to be provided including general purpose reader stations, graduate study carrels, and library telecommunications/computer based workstations. The telecommunicating computer based reader

station has emerged in recent years as a result of the need to provide information (voice, video, text, graphics, and image) in electronic form from either on-site resources or remotely via telecommunications.

In total, these three types of reader stations are to be calculated at 20% of the projected full time equivalent students (FTES) for the campus in the date of facility occupancy plus 10 years. The following provides the space standards for each type of reader station.

1. General Purpose Stations - 80% of the total projected reader stations are to be this type and are to be sized at 25 assignable square feet per station.

2. Graduate Study Carrels - 10% of the total projected reader stations are to be of this type and are to be sized at 35 assignable square feet per station.

3. Library Telecommunications/Computer Workstations* - 10% of the total projected reader stations are to be this type and are to be sized at 49 assignable square feet per station.

D. Technical Processing and Public Service Space. CSU formulas have been in effect in this category for 15 years and are being retained without change. Space for the library staff is to be provided at the rate of 225 assignable square feet per projected staff member.

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*The library telecommunication/computer workstation is not to be construed as a student access computing workstation. The student access workstations are employed to meet the direct instructional computing support needs of the academic program. The two types of workstations have been conceived and are designed to serve different functions.

IV. PROCEDURES FOR CALCULATING LIBRARY SPACE

Space planning and projections, utilizing the above standards, are to be based upon the official Full Time Equivalent Students (FTES), the VOLM, and the Full Time Equivalent Library Staff (FTELS) projections for the target year of facility occupancy plus 10 years. The official projected FTES for all campuses are provided each year by Analytic Studies. The official VOLM and FTELS are provided by the Division of Library Affairs. The target date of facility occupancy is to be agreed upon by the campus and the Division of Physical Planning and Development.

A. Calculating the Collections and Non-Book Material Space. To calculate the collections and non-book space, in terms of assignable square feet, the campus must use the most recent projected official VOLMs for the facility occupancy date plus 10 years. In addition, a five (5) percent weeding factor is to be taken into account in calculating the collections space needs. The following steps are to be utilized in determining the space needs for collections and non-book materials.

Step One - verify that the VOLM data for the facility occupancy date plus 10 years are official.

Step Two - take the official VOLM data and subtract the 5% weeding factor to establish the projected collections size and the level of collection.

Step Three - apply the appropriate formula for the level of the collections, calculate the total "open stack" space required, and calculate the total "on-site high density shelving" space required.

Step Four - subtract the existing "open stack" space and the existing "on-site high density shelving" space from the

calculated totals to determine the net space needs in the proposed project.

Step Five - utilizing the non-book space standard, calculate the net space needed for the proposed project.

B. Calculating the Reader Space. To calculate the reader space, in terms of assignable square feet, the campus must use the most recent projected official FTES for the occupancy date plus 10 years. The following steps are to be used to calculate reader space needs:

Step One - verify that the FTES data for the facility occupancy date plus 10 years are official.

Step Two - based upon the official FTES calculate the total number of reader stations needed for the library utilizing the standard of 20% of the FTES.

Step Three - utilizing the standards calculate the number and space needed for each type of reader station.

Step Four - for each type of reader station subtract the existing number and space to determine the net reader station space needs for the proposed project.

C. Calculating the Technical Processing and Public Service Space

To calculate the amount of technical processing space needed, in terms of assignable square feet (ASF), the campus must use the most recent projected official Full Time Equivalent Library Staff (FTELS) for the facility occupancy date plus ten years. The following steps are to be used to calculate technical space needs:

Step One - verify that the FTELS projections for the facility occupancy date plus 10 years are official.

Step Two - utilizing the official FTEL data and the standards, calculate the total technical processing space needs.

Step Three - take the total space requirements and subtract the existing technical processing space to ascertain the net space needs for the proposed project.

V. SUMMARY

These policies, standards, and calculations should assist the campuses in developing plans for library facilities that will meet their long range needs. The policy to employ a 10 year planning horizon will insure that campuses will not be confronted with the need to constantly develop building plans for library facilities. In addition, it will reduce the overall long term cost to the State of California.

The Divisions of Library Affairs and Physical Planning and Development are prepared to assist the campuses in initiating and developing proposed library projects within the Capital Outlay Program.

The California State University

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JUSTIFICATION AND COST IMPACT OF THE NEW CSU LIBRARY POLICIES AND STANDARDS

A Report to the
California Postsecondary Education Commission

Submitted by

The Division of Library Affairs

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Justification and Cost Impact of the New CSU Library Space Policies and Standards

I. INTRODUCTION AND BACKGROUND

In the mid 1980's, in recognition of the emerging technological changes in the way information was being produced, packaged, stored and transmitted, the CSU launched an extensive planning effort to develop a long range strategic plan for library services for all the campuses. The planning effort was designed to set forth the goals and objectives to be pursued during the last decade of the 20th century. The plan identified necessary changes in policies, standards and strategies to insure the 360,000 students and 20,000 faculty had ready access to the scholarly information that is vital to the teaching and learning environment.

After three years of in depth planning by librarians, library administrators, and teaching faculty as well as campus and systemwide administrators, a systemwide ten year development plan for libraries was completed in 1987. The plan, which is entitled Library Planning in the California State University: 1986/87-1996/97, was endorsed by business and academic vice presidents and by the presidents. In November, 1987, the plan was adopted by the Board of Trustees as a planning framework for shaping future policy and standards.

The Board approved the following resolution:

RESOLVED, That the Board of Trustees of The California State University accepts in principle the ten-year library plan entitled Library Planning in The California State University, 1986/87-1996/97, as a policy framework for the Board's and system guidance in developing subsequent program and budgeting support proposals as appropriate.

The incentive for the new CSU library space policies and standards is found in the Library Plan under "Goal IV. Update CSU library standards", which expressed the following objectives:

- Develop and maintain facilities that will provide CSU students and faculty timely access to scholarly information. Provide space for adequate and appropriate reader stations and staff work areas.

- Prepare a standard for collections of information materials in all formats.

- Consider standards for equipment in keeping with current information transfer technologies

The policy and standards development effort was thus an extension of this long range library planning effort. In the period during which the plan, and subsequently the new space policies and standards were developed, capital outlay projects were conceived for new library facilities. While the proposed new standards had not yet been officially promulgated, they were widely available, and some campus project plans incorporated them. In fact, during this period some of the campus plans employed the old standards and some employed the new standards.

In the FY 90/91 Capital Outlay budget process the Legislative Analyst Office (LAO) observed some plans with the new standards, some with the old standards, and some with a mix. As a consequence, the LAO recommended the following budget report language be adopted:

> ***It is the understanding of the Legislature that by June 1, 1990, The California State University (CSU) shall have submitted the CSU revised space standards for the CSU libraries to the California Postsecondary Education Commission (CPEC) for commission review. The submittal should include supporting justification and cost implications of any proposed changes and consider, among other matters, (1) increased on-site compact storage, (2) provision for reader stations with computer telecommunication capabilities, including their relationship with tho Campus Information Resources Plan, and (3) a ton-year planning target date beyond building occupancy. In addition, as part of this review CSU and CPEC shall evaluate the efficacy of open stack area limits for campuses that reach their master plan enrollment ceilings. It is the intent of the Legislature that CPEC complete its review and transmit its recommendations to the Joint Legislative Budget Committee, the legislative fiscal committees, and the Department of Finance by November 1 1990 in order that the new standards may be considered and acted upon by the Legislature during deliberations on the 1991/92 budget.***

This report addresses the justification and cost implications of the changes noted in the budget language. Section II describes the policy and standards changes made by the CSU. Section III states the justification for changing the planning horizon; introducing on-site high density shelving; reducing the space requirements for non book material; and implementing a third type of reader station to take advantage of CSU information technology capabilities. Section IV presents three real campus cases to demonstrate the favorable cost

impact to the state - - both capital and operational - - in adopting these new policies and standards. Section V is a brief summary.

Finally, this report does not include any analysis pertaining to the "efficacy of limiting open stack collection for campuses that reach enrollment ceilings". During the planning process this issue was not raised. In fact, we do not know of any library or university that has addressed this issue. However, the CSU is prepared to review this issue jointly with the California Postsecondary Education Commission and to respond to the Joint Legislative budget Committee by November 1, 1990.

II. CSU POLICY AND STANDARDS CHANGES

Sixteen years have passed since the last comprehensive systemwide library plan was accepted by the Board of Trustees. Since that time academic libraries have changed considerably and have been influenced by significant changes in the information and publishing industries, which have in turn had significant impact on teaching, learning and research methods. In addition, the new technology and the requirement to deliver information in a timely and efficient manner have caused CSU libraries to automate functions that effect services, facilities and collections and impact the daily lives of students and faculty.

These new policies and standards begin to address the most important issues. They are designed to update the CSU library facilities to the current level of technology available.

There are four significant changes which result from these new policies and standards. They are highlighted below:

	Old (SUAM) Policies & Standards	**New Policies & Standards**
Target Year	Occupancy date plus 2 years.	Occupancy date plus ten years.
On-site High Density Shelving	Optional only.	Required for all collections over 400,000 volumes.
Non-book Library Materials	Provides space equal to 25% of total book stack area.	Provides space equal to 35% of open book stack area.

Reader Stations	Total Reader Station Entitlement Equal to 20% of FTES Apportioned as follows: 90% at 25 ASF each 10% at 35 ASF each	Total Reader Station Entitlement Equal to 20% of FTES Apportioned as follows: 80% at 25 ASF each 10% at 35 ASF each 10% at 49 ASF each (new)

III. JUSTIFICATION FOR THE NEW CSU LIBRARY POLICIES AND STANDARDS

The purpose of this section is to present the justification for implementing the above changes to the CSU library space policies and standards.

A. Ten Year Planning Horizon

There are important considerations that contribute to the decision to establish a policy to scope academic library facilities for the projected occupancy date plus ten years, rather than occupancy plus two years.

As library collections grow they consume available space. A building planned for only three years (occupancy plus 2 years) must repeatedly be modified. Experience has demonstrated that over a ten year span library buildings are modified several times. Planning costs are frequent and high. Construction costs applied to existing structures are often higher than new construction costs and certainly more disruptive to library services.

We have noted other institutions of higher education which plan and construct facilities that provide space for as much as fifteen years. A facility planned for 10 years beyond the occupancy date permits the campus library to implement more effective and stable programs and services. In addition the new policy calls for the management of collection growth as well as accommodating expected changes in such areas as service requirements, publishing, and technology. A facility scoped for three years does not provide the necessary time to buffer the decisions regarding what is to be placed in "on-site high density shelving" and what is to be eventually discarded.

B. On-Site High Density Shelving

In the past, CSU library space policies and standards did not specifically require campuses to manage the growth of collections and library

facilities. Thus the immediate reasons for introducing standards for on-site high density shelving are:

1. A cost effective means of significantly slowing the rate of growth of collection space.

2. A cost effective means of keeping academic library materials on campus for immediate availability to students and faculty.

3. To eliminate transportation and telecommunications costs associated with remote library storage.

4. To eliminate the need to maintain and staff separate library facilities associated with remote library storage.

5. To eliminate the cost of handling, processing and indexing, thousands of items for shipment to remote library facilities.

6. To provide a superior way to display collections for undergraduate usage while maintaining the overall local collections without impinging upon the needs of graduate students and faculty.

7. To eliminate the cost of mistakes and poor judgment. For example, when items are sent to a remote facility the initiating cost is significant and the cost of restoring them to the original site is equally significant, when it has been determined that an item should have remained with the originator. Under onsite high density methods no such costs occur.

8. Whenever the density of shelving is increased capital and operational savings are realized.

While current CSU policy and technology includes on-site high density shelving at 35 volumes to the ASF, the CSU has already focused on newer technology which could increase the density of shelving significantly. This technology is being installed at CSU Northridge as a prototype and is identified as AS/RS (automated storage and retrievable systems). The CSU will not be ready to introduce this approach systemwide until at least two to three years after the AS/RS facility at Northridge has been occupied and the processes of this new technology are evaluated and validated as being effective in serving CSU faculty and students.

C. Non Book Library Material

The old CSU standards (those being replaced) provided space for non book library material at the rate of 25% of the total space needed for the overall collection. However, non book library material may also be assigned to on-site high density shelving and as a consequence it is also appropriate to reduce the amount of space allocated to this non book category. Instead of allocating space equal to 25% of the total space needed for the overall collection, a smaller amount of space is allocated for this non book shelving area. The space allocation is now equal to 35% of only the "open stack" area of the collection. The net effect is a significant reduction of such space and costs. This is demonstrated in Section IV under the current facility construction projects.

D. Reader Stations

CSU libraries need three categories of Reader Stations. Each category is designated for a different purpose and consequently sized differently. The amount of new space needed for three categories instead of two categories is not significant. The space savings with the Non Book Library Material actually offsets the modest increase in Reader Station space.

Only the reader station designated as Library Telecommunication /Computer Workstation (LTCW) is new. General Purpose Reader Stations and Graduate Carrels have been part of the formula for fifteen years.

1. General Purpose Reader Stations

These are provided at the rate of 80% of the sum total of Reader Stations permitted by the library formula. For example, if the library is permitted 2,000 reader stations then 80% of them, or 1,600, are GENERAL PURPOSE READER STATIONS seating. These are calculated at 25 ASF per seat. Typically these are seats at tables or individual chairs located throughout the library facility in designated reading and lounge areas or study rooms.

2. Graduate Study Carrels

These are provided at the rate of 10% of the total Reader Stations permitted by library formula. For example, if the library is permitted 2,000 reader stations then 10%, or 200, are to be designated Graduate Study Carrels. These are calculated at 35

ASF per seat. Typically these are individual or clusters (three to four in a cluster) of free standing cubicles where graduate students may work with their library materials in privacy. No equipment is associated with these carrels.

3. Library Telecommunication/Computer Workstations (LTCW)

The LTCW's are to be provided at the rate of 10% of the total Reader Stations permitted by library formula. For example if the library is permitted 2,000 reader stations then 10%, or 200, are to be designated LTCW's. These are calculated at 49 ASF per seat. These workstations require more space than other library reader stations because of the equipment and the work space needed to accommodate additional forms of information such as books and periodicals used in a library environment. The LTCW's contain an aggregate of electronic library equipment that permits the student to access and examine different formats of electronically accessed information. Library Telecommunication /Computer Workstations examples are listed below:

a. A personal computer system principally committed to networking with local and remote collections or information databases i.e., U.C./ Melvyl, CARL/ UNCOVER, ISI, EASYNET, DIALOG. Typically these LTCW's are IBM or MAC personal computers linked to printers for student use without commercial software capability. In addition these LTCW's may be linked to local and remote on-line integrated library systems i.e., catalogs, acquisitions order system, periodicals and serials, circulation status reports, reserve book holdings, etc. Typically these are bibliographical type information stations.

b. A CD-ROM system with handlers that may be linked to juke boxes i.e., University Microfilm International CD-ROM Business data bases, Silver Platter etc. Typically two to five stations are clustered and served by a single CD-ROM juke box or, less typically, stations are connected to a remote database facility via CSUNET.

c. An audio/video system linked to a personal computer with, for example, hyper/card capability for mixed media format display and access. Typically these may be linked to television equipment or laser printers to permit students using audio and video media held in library collections to

assemble and develop classroom projects in design, engineering, art, education method studies and public administration.

The Library Telecommunication/Computer Workstation (LTCW) must not be confused with the student access computer workstation identified in the Campus Information Resources Plan (CIRP) referred to by the Legislative Analyst. They are not the same. The two provide for different needs. The LTCW is essentially designed to access and investigate bibliographic information in much the same way a book is used to provide information to support instructional and learning needs. The student computer workstation referred to in the CIRP is, on the one hand, a learning tool and computer to assist the student in performing his or her work while, on the other hand, it is a computer used to communicate non bibliographic intelligence.

IV. COST IMPACTS

The cost effects involving three important issues are investigated and displayed. These are:

- Capital costs of library construction using real CSU library projects as models.
- Comparisons of library construction costs by type of shelving used in library facilities.
- Operational costs associated with each of three current methods used in shelving library materials.

A. Capital Cost Impacts

The purpose of this section is to review the cost impacts of the new standards as they relate to three actual CSU capital outlay projects at San Diego State University, California State University, Fullerton and California State University, Bakersfield. For each, a project comparison is made between the current SUAM and the new CSU Library Standards. These three were chosen as examples because they are current projects and also represent a large, medium and small campus library in the CSU system of academic libraries.

The following Library Space Comparison tables display in Column (1)

current State University Administrative Manual (SUAM) standards. The figures in this column are based upon the current long standing construction policy of occupancy plus two years. There is no requirement regarding storage of library material in "on-site high density shelving" in the current (SUAM) standards. Column (2) displays the current SUAM standards carried out to occupancy plus ten years in order to compare them with column (3) the new CSU Library Standards, which are based upon occupancy plus ten years.

San Diego State University Library Project

The largest CSU campus:

Founded in 1897
35, 582 students (26, 000 College Year Annual FTES)*
43, 258 VOLM allocated annually (1990)**
Collection holdings of approximately 1, 070, 000 volumes (Level 4 Collection)

When comparing col. (3) with col. (2) in the Book Stack category for assignable square feet (ASF). the new standards require 34,800 fewer ASF than the current SUAM standards, while accommodating the same growth over the ten years.

Special non book materials also require 800 fewer ASF using the new CSU Standards.

Reader Stations, however, require 12, 000 additional ASF using the new CSU Standards. This is caused by the need to accommodate the LTCW Library Telecommunication/Computer Workstations.

Using the new CSU standards the net result is an overall 23,600 ASF reduction valued at approximately $3,800,000 of avoided project level costs for new construction. Adding shelving costs and other Group II equipment the costs avoided of approximately another $600,000. The total net costs avoided are approximately $4,400,000 as a direct result of using the new CSU Standards.

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*Including Calexico and North County Center
**Before applying the 5% weeding factor.

SAN DIEGO - LIBRARY SPACE COMPARISON

(Assigned Square Feet - ASF)

LIBRARY SCOPE	(1) SUAM Target Year 96-97	(2) SUAM + 10 YEAR Target Year 2004/05	(3) 10 YEAR NEW STANDARDS Target Year 2004/05
VOLUMES @ 40,850/year*	1,301,200 **	1,628,000	1,628,000
BOOK STACKS			
• Open @ 10:1	130,100	162,800	114,000 @ 70%
• High Density @ 30% of Bound Volume @ 35 Vol/sq. ft. minimum	---	---	14,000 @ 30%
• Special Materials @ 25% Bound Vol. Area (SUAM) @ 35% Open Stack (10 Year)	32,500	40,700	39,900
READER STATIONS			
• 20% FTE = 5000 90% @ 25; 10% @ 35 (SUAM)	130,000	130,000	
• 20% FTE = 5000 80% @ 25; 10% @ 35; 10% @ 49 (10 Yr)			142,000
TECHNICAL SERVICES			
• 157 Staff @ 225	35,300	35,300	35,300
TOTAL ASF REQUIRED	327,900	368,800	345,200

This comparison is based on projected appropriated volume purchase.

* Includes 5% weeding factor against appropriation purchase.

** Uses base year 1987-88, 981,000 Volume + 34,200 ACQ 88/80 = 1,015,200 Bound Volume 6/89.

California State University Fullerton Library Project

A mid-sized CSU campus - enrollment ceiling:

Founded in 1957
24, 961 students (17, 800 College Year Annual FTES)*
32, 058 VOLM allocated annually (1990)**
Collection holdings of approximately 676, 700 volumes (Level 3 Collection)

The following display for CSU Fullerton indicates the same results as those shown for SDSU at a slightly smaller scale.

When comparing column (3) against column (2) in the Book Stack category the new CSU Standards require approximately 25, 800 fewer ASF than the current SUAM standards.

Special non book materials shows a reduction of 600 ASF space using the new CSU Standards.

Reader Stations shows an addition of 9,600 ASF using the new CSU standards required for the same reasons as indicated for SDSU.

Using the new CSU standards the net result is an overall reduction of 16, 800 ASF in overall library space at CSU Fullerton. The net costs avoided are approximately $2, 500, 000 of project level costs for new construction. Adding shelving costs and other Group II equipment costs approximately another $450,000 is saved. The total net costs avoided are approximately $3,150,000 as a direct result of using the new CSU Standards.

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* Including Mission Viejo off-campus center.
**Before applying the 5% weeding factor.

FULLERTON - LIBRARY SPACE COMPARISON

(Assigned Square Feet - ASF)

LIBRARY SCOPE	(1) SUAM Target Year 96-97	(2) SUAM + 10 YEAR Target Year 2004/05	(3) 10 YEAR NEW STANDARDS Target Year 2004/05
VOLUMES @ 40,850/year*	903,200 **	1,205,305	1,205,305
BOOK STACKS			
• Open @ 10:1	90,300	120,500	84,400 @ 70%
• High Density @ 30% of Bound Volume @ 35 Vol/sq. ft. minimum	---	---	10,300 @ 30%
• Special Materials @ 25% Bound Vol. Area (SUAM) @ 35% Open Stack (10 Year)	23,000	30,100	29,500
READER STATIONS			
• 20% FTE = 3660 95/96; 4000 03/04 90% @ 25; 10% @ 35 (SUAM)	88,400	104,000	
• 20% FTE = 3660 95/96; 4000 03/04 80% @ 25; 10% @ 35; 10% @ 49 (10 Yr)			113,600
TECHNICAL SERVICES			
• 128 Staff @ 225 95/96	28,900	31,050	31,050
TOTAL ASF REQUIRED	230,600	285,650	268,850

This comparison is based on projected appropriated volume purchse.

* Includes 5% weeding factor against appropriation purchase.

** Uses base year 1989-90, 720,500 Volumes.

California State University Bakersfield Library Project

A small CSU campus:

Founded in 1965
5,226 students (4,000 College Year Annual FTES)
14,840 VOLM allocated annually (1990)*
Collection holdings of approximately 313,000 volumes (Level 1 Collection)

When comparing column (3) to column (2) there is a modest Book Stack reduction of 3,800 ASF using the new CSU standards.

Special non book materials space is increased by 3,300 ASF for the campus since it has not yet attained 400,000 volumes in its collections.

Reader Station space is slightly increased by approximately 2,200 ASF using the new CSU standards.

Using the new standards the overall space impact for this small CSU academic library adds approximately 1,600 ASF. This added ASF adds approximately $230,000 of additional construction cost. However, it does eliminate the need to plan and construct new space in the ten year period.

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*Before applying the 5% weeding factor.

areas. CSU's initial analysis determined that by following the consultants (HBW) recommendation the amount of space required was equal to or exceeded the space provided under the method of calculation already in place. The CSU calculation of 225 sq. ft. per work station takes into consideration the consultants auxiliary space allowance in the overall scope and plan for library technical processing/public service space. In other words the CSU calculation includes both the work station area and the auxiliary area in the one figure to be calculated by formula. All parties are in accord on this matter including the state reviewing agencies. Therefore, the 225 square feet standard is consistent with the earlier recommendations.

b. On the majority of CSU campuses Multimedia/Audio Visual operations are not part of the library operation. It is CSU policy that such space must be justified on its own merit separately from the elements of campus library space formulas and standards. While it is acceptable to build or accommodate Multimedia/Audio Visual space in a campus library facility such space is justified separately on its own merit and not counted against the campus library facility space allowance. This fully meets the recommendation of HBW consultants.

CPEC Comment 5: We would suggest that the State University reexamine this documentation (cost applicability comparisons of 1984) for use in a more in-depth presentation to CPEC, the Legislative Analyst and other state officials to address any concerns that exist regarding this issue.

CSU Answer: We are prepared for a more in depth presentation. Again, we would refer you to one of the documents sent to you in June for review entitled, Justification and Cost Impact of the New CSU Library Policies and Standards. June 1990, particularly pp. 15-16 where comparisons of costs by type of shelving are utilized with their attendant operational costs.

We believe that the cost comparisons clearly show justification for the CSU position and support its long range ten year library plan as well as the new standards and policy.

CPEC Request 6: Please tell us if you are considering a "Melvyl" type information sharing system and if not why not?

CSU Answer: The CSU is not considering developing a "Melvyl" type information sharing system. There are two basic reasons we are not considering a Melvyl type option 1) Lack of resources and 2) Better alternatives are available.

B. Comparison of Costs by Type

The following tables display the capital cost implications of various storage and shelving techniques. Traditional Open Stack Shelving is based upon 10 volumes to the ASF. On-site High Density Shelving is based upon the nominal 35 volumes to the ASF. In most cases one can see that slight benefits are realized in the use of space as the shelving area increases in size, included are construction and shelving costs.

For "Open Stack" collections the cost per volume is constant at $11.00 per volume regardless of the number of volumes.

Storage Type	100,000 Vols.	300,000 Vols.	700,000 Vols.
OPEN STACK SHELVING			
Square Feet	10,000	30,000	70,000
Volumes Per Square Foot	10	10	10
Cost Per Square Foot	$110	$110	$110
Cost	$1,100,000	$3,300,000	$7,700,000
Cost Per Volume	$11.00	$11.00	$11.00

For On-site High Density Shelving (Motorized) there is a significant drop in cost per volume as compared above to the "open stack" method.

ON-SITE HIGH DENSITY (MOTORIZED)			
Square Feet	2,632	8,333	20,000
Volumes Per Square Foot	38	36	35
Cost Per Square Foot	$115	$115	$115
Cost	$302,632	$958,333	$2,300,000
Cost Per Volume	$3.03	$$3.19	$3.29

Industrial Shelving is the principal type associated with Remote Library Facilities such as the types used by the University of California. The high density is achieved by shelving materials two and three rows deep on each shelf. This approach increases staffing cost because of the increased need to provide personal service in this type of facility plus the need to operate two facilities. The cost per volume associated with Remote Library facilities decreases with the number of volumes stored.

INDUSTRIAL SHELVING			
Square Feet	3,704	9,677	19,444
Volumes Per Square Foot	27	31	36
Cost Per Square Foot	$100	$100	$100
Cost	$370,370	$967,742	$1,944,444
Cost per Volume	$3.70	$3.23	$2.78

C. Operational Cost Impacts

The table below is drawn from an article, "Robots in the Library: Automated Storage and Retrieval Systems" by Mr. John Kountz, published in the Library Journal of December, 1987. The table displays annual operations costs with the type of shelving or storage discussed above.

The costs listed in the following table do not include transportation of library materials to and from a remote facility or telecommunications to identify, locate and request materials or initial set up of separate records, or additional land value costs that must be added to the cost of a remote site.

The table points out critical information about operating costs associated with the various types of shelving facilities. All academic libraries must pay the same "open stack" operating costs of approximately $.28 per book. The CSU on-site high density cost is $.09 per book. This is more cost effective than Industrial Shelving, used in Remote Storage facilities, which is approximately $.20 per book.

Estimated Annual Cost
to Store 600,000 Books in a Retrievable Manner

Type	Sq. Ft.	A/C/ Lights	Janitor	Reshelve Operator	Power	Prev. Maint.	Book Unit Cost
Open Stacks	60,000	63,000	81,420	24,000	0	0	.281
On-site High Density	20,000	10,500	13,570	24,000	2,700	3,000	.090
Industrial Shelving	40,000	42,000	54,280	24,000	0	0	.200

V. SUMMARY

The adoption and implementation on the new CSU policies and standards will result in: capital and operational cost avoidance; long range space reductions; stability in programs and services rendered library patrons; and effective use of "Information Age" technologies.

A. Cost Avoidance

As shown in the three CSU case studies (Section IV), the new CSU standards result in saving the State of California $6.5 million in capital construction costs. When extrapolated over the 20 campuses at the rate of two campus library projects per year the future capital cost savings could range between $40 - $60 million.

In addition, there is a demonstrated operational cost savings by using "on-site high density storage". These savings come in the form of the number of staff needed and the cost of space maintenance.

B. Space Reductions

As demonstrated for both the San Diego State University and the CSU Fullerton projects there is a net savings of space required for the facilities. This is a direct result of the new space standards for "on-site high density shelving" and non book material. In fact all CSU libraries with collections that exceed 400,000 volumes the future space requirements will result in a net reduction using the new standards. Only those campuses with collections under 400,000 volumes will gain space using the new standards. There are only three campuses in the category including CSU San Marcos, founded in 1989, CSU Bakersfield and CSU Stanislaus.

C. Stability in Services

As a result of only having to plan library facility expansion every ten years a campus library will be able to normalize the use of space. This will help stabilize the physical environment and should improve services to students and faculty. When changes in space are made every three to four years it is very difficult to achieve the type of atmosphere expected of an academic library.

D. Use of Technology

The introduction of automation in many forms will facilitate the campus library's ability to serve its patrons. The LTCW is a vital ingredient in making remote knowledge bases and data readily available to students and faculty. Increasingly information will be in digital form. It is critical that library facilities are constructed to optimize the use of the new and emerging technologies.

Appendix B Commission Response, August 16, 1990

August 16, 1990

Dr. John M. Smart
Vice Chancellor
University Affairs
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400 Golden Shore
Long Beach, CA 90802-4275

Dear Jack:

On June 1, you transmitted to us the revised library space standards for the California State University in response to proposed Supplemental Report Language for the 1990-91 state budget. As you are aware, there is little time to complete the tasks set forth in the Supplemental Report and, therefore, we hope to expedite the exchange of information and reports that will be necessary to respond to it. Our initial responses to the new CSU library space standards are listed below, along with our responses to your information on the 3 points listed in the Supplemental Report (those shown as (1), (2) and (3) in the proposed language). We have attached the appropriate pages from all of the reference documents we cite in this letter.

Revised CSU Library Space Standards

In response to concerns raised by the Legislative Analyst's Office in the 1984-85 budget hearings (attachment 1) the Legislature adopted Supplemental Report Language calling for a library space study in the State University. CSU hired HBW Associates as consultants to review their library operations and recommend changes in the CSU library space / utilization formulas as appropriate; the language also directed the Commission to comment on this report (excerpts provided in attachments 2 and 3, respectively). The reports confirmed that a deficit existed for library space in the State University and in certain cases that there were differences between the exiting standards and the way State University libraries actually utilized library space. The State University addressed these reports, agreeing with the main findings (attachment 4), and requesting some further analysis from HBW, which they provided (attachment 5). After reviewing the information you have recently sent us, we are unclear as to the status of the recommendations by both the consultants and Commission staff with regard to changes in CSU library space standards and practices. Our concerns and questions are as follows:

a) HBW concluded that no changes were needed in the standards for bookstack space, but recommended that additional shelving be added to relieve overcrowded bookstacks (nationally, average college libraries consider their bookstacks [shelves] at capacity when they are 80 percent full -- CSU's nine libraries studied averaged between being 85.5 and 92.2 full, according to the consultants).

1. *Has this bookstack overcrowding been addressed?*

b) The bookstack issue also impacts the area of Reader Stations. As of 1985, the State University and the HBW consultants agreed that no revisions to the reader station space formulas were needed. HBW went on: "the actual or occupied space for many of the reader stations in the libraries surveyed has been compressed by expanded space for bookstacks into far less space than called for in the formula."

2. *Has this crowding been addressed prior to the development of the new Reader Station space formula component?*

Both the HBW and CPEC reports noted that several non-library functions were being housed in CSU libraries. These functions, called "tenant functions", ranged from ROTC offices to consumers bureaus. We acknowledged that some of these functions -- such as instructional media services and learning assistance centers -- were probably appropriate to be noused in the colleges' libraries, but stated that changes should be made in the space generating formulas to recognize -- and generate space for -- these activities. In this way, their being housed in the libraries would not crowd out other, traditional library functions. For the nine CSU libraries studied by HBW, a total of 106,098 assignable square feet were used to house these tenant functions.

As we said in our 1984 report, while CSU would still have a big space deficit (i.e. have less library space available than justified by the old 1966 CSU library space formulas) even if all the tenant functions were removed from the libraries, a truly accurate picture of the CSU's library space needs would not exist until these functions were dealt with in some way -- either by their being removed from the libraries, or by changing the space formulas in some way to recognize their existence and generate some appropriate library space for them. The State University agreed with the consultant's and CPEC findings on this issue and stated: "CSU will review its policy on this matter and will endeavor to find appropriate alternatives for assigning such space, particularly before requesting new space for libraries."

3. *The reports you submitted to us do not seem to address this issue and so we ask how has the tenant function issue been resolved, and how have the projected library space needs that you show been effected by the resolution of this issue?*

c) Finally, HBW proposed that a different methodology be used for calculating Technical Processing and Public Service space needs than that used in the State University since 1966. They also recommended developing better working definitions for space allocations for Multimedia and Audio Visual Centers. To summarize these recommendations, the consultants stated that the 1966 library space standards posed a problem in that they generated no formula-derived space for the auxiliary space needed by library staff, but rather relied upon a more generous designation for technical processing / public service space as a whole than is the standard in other academic libraries.

HBW went on to recommend that CSU's calculations for this type of space be revised to include: 1) An allowance by type of assignable staff support or auxiliary space, such as staff room, circulation service desk/work room conference rooms, etc., and 2) Either a revised -- and reduced -- gross assignable square footage (a.s.f.) allowance for other FTE staff, or specific space recommendations by type of library staff, such as administrative and office staff, cataloger staff, reference librarians etc. They recommended that the per work station a.s.f. be reduced from 225 to 200 or 175 sq. ft. per work station and that the formula be revised to include additional elements to provide needed auxiliary space. At the time CSU's response to the consultant's recommendations in this area was, to quote: "The Chancellors Office staff believe this to be a reasonable alternative and suggest that auxiliary space be program-oriented and justified on merit campus by campus."

With regard to Multimedia and Audio-Visual functions, HBW recommended the following working definition for this space: "A separate multimedia or audio-visual center within the CSU libraries shall be so designated as such only if it is primarily so recognized in the library administrative structure, primarily serves students with software of all types including audio, tables for listening/viewing, a separate service desk and librarian." The consultants recommended that the CSU review and revise this definition for use in planning overall library space.

4. *The information submitted by the State University does not address these recommendations, and so we ask: have your definitions of, and formulas for, the two library functions Technical Procession / Public Service and Multimedia / Audio-Visual been brought into line with the consultants recommendations?*

To summarize these initial questions, the HBW, CPEC and CSU reports on library space design, usage and space-generating formulas produced much useful research and information. At the time, we expected the State University to take some formal action on these recommendation and to incorporate some of the findings into your library space planning for the future. We are unable to fully evaluate your June 1, 1990 submittal of proposed library standards until we know how they relate to both the points raised above and any other findings in the 1984 and 1985 State University library space studies.

Increased on-site compact storage

The information presented in response to this provision of the proposed supplemental language effectively states the need to implement some technologically advanced high-density book storage system. Over the past five years the State University has undertaken much research to determine how practical a high-speed, automated storage and retrieval system could be adapted for use in academic libraries. Installing a prototype of this "AS/RS" system at CSU Northridge has been a goal of the State University for some time.

In its 1984 report, CPEC recommended that CSU provide some cost and applicability comparisons between its proposed on-site storage and other remote information storage systems, such as that used by the University of California. In response to this suggestion, the State University presented information explaining the differences in segmental missions and goals that rendered off-campus library storage systems impractical for the State University. You also supplied some cost comparisons that appeared to show the cost effectiveness of the proposed AS/RS (attachment 6). At the time the information presented was somewhat convincing but rather speculative, especially as it related to costs.

5. *We would suggest that the State University reexamine this documentation for use in a more in-depth presentation to CPEC, the Legislative Analyst and other state officials to address any concerns that exist regarding this issue.*

We also question why the concept of a statewide CSU online catalog, along the same line as the UC "Melvyl" system, has not been discussed at any length. The benefits of this sort of system would include the sharing of resources and the ability to gauge the breadth of individual campus collections by subject area. This sort of resource sharing system would also allow individual campus libraries to "beef up" their standard core collections and to highlight specialized collections which may mirror the historic, social or philosophical character of a particular State University campus. The main criticism of these sorts of online catalogs is a perceived loss of campus autonomy but this fear seems unwarranted since most, if not all, State University libraries share the same bibliographic utility, OCLC, for cataloging, whereby an individual CSU library holdings would appear in the holdings statement.

6. *Please tell us if you are considering a "Melvyl"-type information sharing system and if not why not.*

Provision for reader stations with computer/telecommunication capabilities

The information provided in response to this part of the supplemental language explains the newest component of your Reader Station space formulas and how they will accommodate CSU library telecommunication/computer workstations (LTCW). We reiterate the questions raised earlier on reader station space, and request further background information explaining the LTCWs, since we do not have much information on these workstations.

7. *Also, are the LTCWs related in any way to the space issues for multi-media/audio visual space standards or are these entirely separate functions?*

Ten-year planning target

The "ten-year" planning information submitted in the State University "Justification and Cost" document satisfies the supplemental language's request for the three campuses cited (CSU San Diego, Bakersfield and Fullerton). We do not know if it was assumed that equivalent tables of information would be developed for each of the

19 current State University libraries in response to this proposed language, and so we agree with your decision to choose one small, one medium, and one large library in response to this section.

8. *Please develop a table of this information for the Northridge facility, given your plans to locate the advanced AS/RS on that campus. We also request more background information on these plans since we are seeing these specific data for the first time and are unfamiliar with the analyses and assumptions that went into developing them. Please reflect any changes that may occur based on our earlier questions in these ten-year planning documents.*

Potential Use of Microform Technology

The 1984 HBW report supported the State University's contention that students and faculty do not like to use microforms. At the time we did not question this decision but after conducting some further research on the subject, we suggest that it re-examined and, possibly, be taken into account in the formulation of new library space guidelines. Essentially, we found that there is a growing trend in some academic and public libraries away from print collections of periodicals and other serials and towards microforms for many reasons. First, print collections take up a lot of shelf space compared to microfiche and other microfilm, which is quite pertinent to this discussion of space standards. Second, single issues of serials -- especially if allowed to circulate -- are often lost or damaged. For high-demand periodicals, many library feel compelled to purchase two subscriptions, one to circulate and one to bind for in-house photocopying. Binding itself is not without problems; it is very expensive and can take many weeks for a set of periodicals. Also, bound documents are unwieldy and frequently are mutilated by individuals unable or unwilling to properly use photocopiers.

Microforms take up far less shelf space than print collections, especially when compared with large bulky-format materials like newspapers. With the rapidly increasing prices of subscriptions for magazines and serials, it would appear to be more economical to pursue microform copies of these subscriptions to have them available in multiple copies. Microforms also are more mobile and can give each department within the library more flexibility to determine the organization and housing of parts of their collection.

9. *Accordingly, we request that you examine the cost implications of not utilizing microform technology in addition to or in lieu of some print collections of periodicals and serials.*

We appreciate the timeliness and thoroughness of the three reports you have submitted in response to the proposed supplemental report language to the 1991 budget act on your library planning process. Given the very tight response time provided for this project -- and the delay in having an actual budget in place -- we hope to work closely with your office responding to the final section of the language, the review of the "efficacy of open stack area limits for campuses" at their enrollment ceilings.

Please contact us if you have any questions about this letter. We will be contacting you in the near future to schedule a meeting to discuss these matters.

Sincerely,

Kenneth B. O'Brien
Executive Director

KBOB:KGW:gr

Attachments

cc: Legislative Analyst's Office
Department of Finance

Appendix C State University Response, October 1990

THE CALIFORNIA STATE UNIVERSITY

BAKERSFIELD · CHICO · DOMINGUEZ HILLS · FRESNO · FULLERTON · HAYWARD · HUMBOLDT
POMONA · SACRAMENTO · SAN BERNARDINO · SAN DIEGO · SAN FRANCISCO · SAN JOSE
LONG BEACH · LOS ANGELES · NORTHRIDGE
SAN LUIS OBISPO · SONOMA · STANISLAUS

OFFICE OF THE CHANCELLOR
(213) 590-

October 8, 1990

Dr. Kenneth B. O'Brien
Executive Director
California Postsecondary Education Commission
1020 12th. Street, 3rd Floor
Sacramento, California 95814-3985

Dear Dr. O'Brien:

This letter is in response to your August 16, 1990 letter to me regarding the revised library space standards for the California State University. In your letter you asked a number of questions regarding the recommendations made in the consultant's (HBW) 1984 library space study and by CPEC and how they impacted and related to our new CSU policies and standards published in the document entitled, Capital Outlay Program Planning for CSU Libraries: Policies, Standards and Procedures, submitted to you on June 1, 1990. The attached information provided by the Division of Library Affairs attempts to answer your questions.

If further clarification is required, please contact Dr. Thomas C. Harris, Director, Library Affairs Office of the Chancellor, P.O. Box 3842, Seal Beach, CA 90740 or telephone 213-985-9594.

Sincerely,

John M. Smart
Vice Chancellor
University Affairs

JMS:TH:ms:9010011

Attachment

cc: Legislative Analyst Office
Department of Finance

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION RESPONSE OCTOBER 2, 1990

This paper is in response to the questions asked by Dr. Kenneth B. O'Brien, Executive Director of CPEC (August 16, 1990 letter to J. M. Smart), regarding the revised library space standards for the California State University. In his letter he asked a number of questions regarding the relationship of the 1984 HBW consultant's study to the Revised CSU Library Space Standards submitted to him on June 1, 1990. As we understand it he is unclear as to the status of the 1984 HBW Study & CPEC recommendations and their impact on the new CSU library space policies and standards. The following information attempts to answer his questions.

CPEC Question 1: Has the book overcrowding been addressed?

CSU Answer: Yes. All new library construction projects conducted since the HBW study have addressed book overcrowding and are consistent with the HBW study and the new CSU policies.

Since HBW's review the CSU has made significant gains on relieving the overcrowded stacks through construction projects at: Stanislaus, Fullerton, Pomona, Sacramento, Long Beach and Northridge. The Bakersfield and San Diego campuses are scheduled for library stack expansion projects in 1991/92 .

The new CSU policies on shelving goes beyond the HBW study in addressing the issue of overcrowding. The HBW study addressed only the "Open Stack" element of the CSU library space formula, meaning the ratio of 10 volumes to 1 square foot. HBW pointed out that the CSU "Open Stack" formula was correct according to national standards and that CSU open stack areas were impacted between 5.5% and 12.2% above the normal level.

The New CSU Library Policies and Standards carry the "open stack" formula forward. The new policies and standards also provide an additional means for addressing the overcrowded book conditions at all CSU campuses--"On Site High Density" shelving. "On-Site High Density" shelving accommodates 35 volumes to the square foot rather than 10 volumes to one square foot. This also is a nationally accepted formula element. To be noted is that at every CSU campus where collections exceed 400,000 volumes On-Site High Density shelving is required (see Space Standards III pp. 3-4). Only CSU San Marcos, Stanislaus and Bakersfield remain below the 400,000 volume threshold. As a campus collection becomes larger the local requirement of high density shelving increases until 30% of the collection is at 35:1 shelving ratio.

CPEC Question 2: Has this crowding been addressed prior to the development of the new Reader Station space formula component?

Your question focuses on the issue that "tenants" (not authorized by systemwide library space formulas or criteria) who occupied library space were using valuable library space that should be made available for reader stations.

CSU Answer: Yes. Before the new library space standards are fully developed each library construction project at each campus is required to reclaim the library space occupied by the so called "tenants" before the project is approved.

CPEC Question 3: The reports you submitted to us do not seem to address this [tenant] issue ("CSU will review its policy on this matter and will endeavor to find appropriate alternatives for assigning such space, particularly before requesting new space for libraries.)

CSU Answer: The tenant issue was addressed immediately upon receiving the HBW and CPEC recommendation. It was later officially initiated as policy when the ten year library plan was accepted as a planning and policy making document by The Board of Trustees in November 1987. The CSU ten year library plan Library Planning in the California State University, 1986/87-1996/97, p.18 states:

> Library space planning is predicated on full occupancy of official library space by library functions. The calculation of library space from the Space Standards does not nor shall it be construed to consider occupancy by tenants...

CPEC Question 4: The information submitted by the State University does not address these recommendations,(Regarding Multimedia and AudioVisual functions and working definitions) and so we ask: have your definitions and formulas for, the two library functions [a] Technical Processing/Public Service and [b] Multimedia/Audio Visual been brought into line with the consultants recommendations?

CSU Answer: Yes.

The two issues must be separated in order to clarify the CSU response.

a. Technical Processing/Public Service Space

The CSU practice was to provide 225 sq. feet per work station. HBW thought that this was excessive and recommended a reduction to approximately 175 sq. feet per work station. However, HBW also stated that this should not include the "obligatory" auxiliary space surrounding the work station i.e., aisle, traffic & storage

areas. CSU's initial analysis determined that by following the consultants (HBW) recommendation the amount of space required was equal to or exceeded the space provided under the method of calculation already in place. The CSU calculation of 225 sq. ft. per work station takes into consideration the consultants auxiliary space allowance in the overall scope and plan for library technical processing/public service space. In other words the CSU calculation includes both the work station area and the auxiliary area in the one figure to be calculated by formula. All parties are in accord on this matter including the state reviewing agencies. Therefore, the 225 square feet standard is consistent with the earlier recommendations.

b. On the majority of CSU campuses Multimedia/Audio Visual operations are not part of the library operation. It is CSU policy that such space must be justified on its own merit separately from the elements of campus library space formulas and standards. While it is acceptable to build or accommodate Multimedia/Audio Visual space in a campus library facility such space is justified separately on its own merit and not counted against the campus library facility space allowance. This fully meets the recommendation of HBW consultants.

CPEC Comment 5: We would suggest that the State University reexamine this documentation (cost applicability comparisons of 1984) for use in a more in-depth presentation to CPEC, the Legislative Analyst and other state officials to address any concerns that exist regarding this issue.

CSU Answer: We are prepared for a more in depth presentation. Again, we would refer you to one of the documents sent to you in June for review entitled, Justification and Cost Impact of the New CSU Library Policies and Standards. June 1990, particularly pp. 15-16 where comparisons of costs by type of shelving are utilized with their attendant operational costs.

We believe that the cost comparisons clearly show justification for the CSU position and support its long range ten year library plan as well as the new standards and policy.

CPEC Request 6: Please tell us if you are considering a "Melvyl" type information sharing system and if not why not?

CSU Answer: The CSU is not considering developing a "Melvyl" type information sharing system. There are two basic reasons we are not considering a Melvyl type option 1) Lack of resources and 2) Better alternatives are available.

The CSU believes that it would be unnecessarily costly to develop a CSU "MELVYL" system when so many alternatives are available at less cost. A "Melvyl" type system also requires a long term commitment to maintain a large systemwide computer center operation with staff and hardware which would be very costly to initiate.

Therefore, the CSU strategy is to first commit to the completion of the campus on-line public access catalog (OLPAC) project. By the end of FY 1991/92 all twenty of the CSU campuses will have either implemented or purchased their systems. We then plan to network the campus OLPACs via CSUNET using the national standards that have been developed (ANSI Z39.50) and which are being refined to permit computer assisted catalogs to communicate with each other.

A second part of the CSU strategy is to provide our faculty and students access to information resources and knowledge systems universally via telecommunications networking. Utilizing the campus network which is connected to CSUNET, which is connected to national and international networks, CSU faculty and students have the technology pathway to access essential information for instruction and research. Already CSU faculty have access to Melvyl via CSUNET. They also have access to the Colorado Alliance of Research Libraries (CARL) via CSUNET. Similar information repositories are being developed which the CSU plans to make available to faculty and students in the future.

CPEC Question 7: Also, are the LTCWs related in any way to the space issues for multimedia/audio visual space standards or are these entirely separate functions?

CSU Answer: No, they are not related and yes they are entirely separate functions.

CPEC Request 8: Please develop a table of this information (i.e., Northridge AS/RS ten year planning) given your plan to locate the advanced AS/RS on that campus. We also request more background information on these plans since we are seeing these specific data for the first time and are unfamiliar with the analysis and assumptions that went into developing them. Please reflect any changes that may occur based on our earlier questions in these ten-year planning documents.

CSU Answer: The CSU Northridge library project AS/RS is the only project currently committed to automated storage retrieval systems as a strategem for on-site high density shelving. Currently, the CSU library space policy of On-Site High Density Shelving requires a shelving ratio of 35:1 (35 volumes to 1 square foot of assignable square feet of library space.

Attachment A provides greater detail about the CSUN AS/RS project as you requested.

CPEC Request 9: Accordingly, we request that you examine the cost implications of not utilizing microform technology in addition to or in lieu of some print collections of periodicals and serials.

CSU Answer: We believe that there is a misconception of what the CSU has and is doing in this area and what has happened in the information industry since the HBW consultants made their report in 1984.

First, it is important to note that all CSU libraries are involved in microform materials and continue to collect in this area. The CSU libraries have policies that include microform in lieu of binding for periodicals and serials. This is a major space saving program. Wherever and whenever possible a subscription is provided in two copies. One is in paper print format for general immediate usage. Included in the subscription is a microform subscription which becomes the final archive copy. The original is not usually retained unless for a technical reason i.e., color plates, high resolution loss of graphic displays etc.

Second, the information industry has moved on to new technology which is less costly, more effective and user friendly. CD-ROM for example is one technology most students and faculty like and it is being purchased and networked increasingly year after year. While at the present time CD-ROM does not compete directly with microfilm there appears to be every reason to believe it may replace microfilm. CSU library space planning has taken these new forms of information into consideration along with the networking requirements. They are in part the motivation towards the new CSU library space standards. The LTCW is one case in point where CD-ROM and networking technology are used. These are impacting the way libraries must access information.

It is too soon to speculate on the actual impact CD-ROM will have on libraries. That is the mistake most made when microfilm was introduced. In addition on-line information through networks is becoming more and more necessary for supporting instruction. Non of these, however, have halted in any way the increasing amounts of traditional formats of paper printed materials.

<u>Conclusion</u>

The CSU ten year library plan and the new library space standards are both designed to place the CSU in the best possible position to react appropriately to the rapid changes taking place in the information industry.

We would be pleased to discuss these matters with CPEC and explain in depth how and why on-site high density shelving serves educators and taxpayers across California. CSU staff are prepared to meet with staff from the California Postsecondary Education Commission and further clarify questions they may have on these matters.

Attachment A

CALIFORNIA STATE UNIVERSITY
NORTHRIDGE
AS/RS TECHNOLOGY

While the AS/RS technology is well proven in commerical applications, the CSUN installation is the first higher education library application in the world. Since its introduction. however, two institutions in Australia and one in England have begun such projects and theirs are also in the construction stage.

The CSU Northridge library facility with its AS/RS unit is under construction and is on time. We expect completion in approximately 12 months. We are reluctant to commit to the AS/RS technology before CSUN has had some experience with it and has adapted current library practices to the new ways of doing business that such technology will require. The campus and the CSU will need approximately two years after occupancy to fully evaluate its impact on current library practices and to develop appropriate policy for the California State University.

In view of the uncertainty of the AS/RS technology satisfying CSU long range needs, we have developed an on-site high density shelving program which is proven. As a consequence, the documentation presented CPEC in June was based on ratios of 35 volumes to one sq. ft. of library space (the moveable aisle). The cost comparisons with conventional technology were included in our cost comparison data. The current CSU on-site high density form utilizes moveable aisle shelving technology rather than AS/RS technology.

With this understanding, here are the specific ten year projection data that you requested pertaining to the CSUN project comparing the AS/RS with a conventional type shelving. It is important to know that the Northridge project added needed reader stations as well in order to comply with the CSU standards. The significance of the data is that they demonstrate the effect that an AS/RS component can have on an comprehensive library construction project.

Model 1
These figures show what CSUN phase two actually cost to house 1,470,000 volume capacity.

90,123	assignable square feet (ASF)
108,500	gross square feet (GSF) X $98.00 construction cost. ($10.6 million) per.sq.ft.

$ 98,249 annual maintenance for AS/RS (includes resident engineer and 98% efficiency)
$183,600 annual utility costs
$122,605 annual custodial costs

$404,454 annual total maintenance cost

Model 2
These figures show the actual conventional library costs for 1,470,000 volume capacity for solving the same problem as used in model 1.

199,873 ASF
285,533 GSF X $98.00 per sq. ft. construction costs. ($27.98 million)

$000,000 annual AS/RS maintenance
$456,857 annual utilities costs
$322,652 annual custodial costs

$779,509 annual total maintenance cost

Model 3
These figures show what the actual costs would have been if the CSU had followed the conventional state plan of housing only 1,018,250 volume capacity or 451,750 fewer volumes. (Without the new library plan. This includes construction plus two years of growth only.)

143,404 ASF
204,863 GSF X $98.00 per.sq.ft. construction costs. ($20.07 million)

$000,000 annual AS/RS maintenance costs
$327,781 annual utilities costs
$231,495 annual custodial costs

$559,276 annual total maintenance costs

All costs are based on actual costs averaged over the two latest years i.e., utilities for library, custodial for library and current construction for libraries.

The above data show that the CSUN AS/RS project is significantly cost effective. The ten (10) year program cost much less than the conventional three (3) year program in both initial capital costs and annual maintenance costs. For example by comparing Model 1 the real CSUN project covering ten years ($14.6 million over the 10 years) with Model 3 the original state plan covering only three years ($26.3 million over the same amount of time but also 451,750 fewer volume capacity) the State has avoided spending $11.7 million not counting the value of the increased capacity of 451,750 volumes.

Appendix D Commission Letter, November 7, 1990

The Honorable Alfred Alquist, Chair
Joint Legislative Budget Committee
State Capitol, Room 5100
Sacramento, CA 95814

Dear Senator Alquist:

Supplemental report language to the 1991 Budget Act directed the California State University to submit their revised space standards for State University libraries to the Postsecondary Education Commission for review. The Commission is to review these space standards and submit their report to the Legislature and Department of Finance.

The time frame for this work in the supplemental report language requests the report by November 1, 1990. However, our preliminary report will not be ready until early December for several reasons: (1) issues related to library space standards are very complex, and we are finding our work on this project to be more difficult than initially envisioned; and (2) the amount of consultation and study necessary to accomplish the supplemental language's other directive to "evaluate the efficacy of open stack area limits for campuses that reach their master plan enrollment ceilings" will take longer than the time allowed.

Finally, Commission staff are conducting further research into the policy and cost implications of the State University's proposed "Automated Storage/Retrieval System" (AS/RS). This issue is referenced under the questions on the cost implications in the supplemental language, as well as in separate supplemental report language; it is quite an extensive topic. This added month will not delay the consideration of State University library projects in the planning of the 1991-92 state budget.

Thank you and please call us if you have any questions.

Sincerely,

Kenneth B. O'Brien
Executive Director

KBOB/kc

cc: Elizabeth Hill, Legislative Analyst
Jesse Huff, Director, Department of Finance
Ellis McCune, Interim Chancellor, California State University
John Seymour, Vice Chair, Senate Budget & Fiscal Review Committee
John Vasconcellos, Chair, Assembly Ways and Means Committee

Appendix E HBW Executive Summary, 1984

SYSTEMWIDE LIBRARY SPACE STUDY

FOR PERIOD 1984-2004

Prepared for:

OFFICE OF THE CHANCELLOR

THE CALIFORNIA STATE UNIVERSITY

400 Golden Shore

Long Beach, California 90802

November 1984

hbw
Associates, Inc.
Library Planners and Consultants
1222 Commerce Street, #1106
Dallas, Texas 75202

EXECUTIVE SUMMARY

On September 18, 1984, the Office of the Chancellor of the California State University (CSU) awarded a study contract for a systemwide library space study at nine, designated CSU libraries to HBW Associates, Inc. Library Planners and Consultants.

The study was designed to address three problem areas:

1. Eliminate causes for crowded open stack library collections.
2. Develop collections on campuses of varying size, variety, flexibility and academic strength in support of the local academic program.
3. Identify, plan and implement a systemwide zero growth library facility plan.

The contract called for a three-part study of the nine, designated, CSU libraries: Dominguez Hills, Long Beach, Los Angeles, Northridge, Pomona, Sacramento, San Diego, San Francisco, and Stanislaus.

Part I of the study included a comparative analysis of library space at each of the nine libraries.

Part II of the study included a projection of space requirements (i.e. bookstacks, reader stations, technical processing and public services) for

traditional open bookstack facilities for the nine libraries over the twenty-year period from 1985-6 through 2004-5.

In Part III of the study the consultants compiled the data and projected the space requirements of non-traditional bookstack techniques for each of the nine libraries over the next twenty years for compact shelving (remote and local) and for local automated storage and retrieval systems (AS/RS).

Principal Findings and Recommendations by Section:

Section IV Comparative Analysis of Library Space

Add Tie-Channels and/or Anchors to Shelving (See Individual Comparative Space Data Sheets, pages IV-6 through IV-17)

To comply with state safety standards, add over-head tie-channels anchored to the wall and/or floor anchors to all 90" high bookstacks that do not have same. This includes bookstacks at Dominguez Hills, San Diego, Stanislaus and Sacramento.

ASF Differentials Among the Libraries (page IV-26)

The net difference for all nine libraries between Reported Occupied (ASF reported in the CSU Library Assignable Square Footage Needs on page II-8) and Actually Occupied (consultant's on-site findings) is a deficit of -31,151 ASF or less than 3 percent, a relatively small differential that underscores a high degree of accuracy in terms of ASF Reported Occupied.

Range of Volumes Per Sq. Ft. (pages IV-26 through 27)

The net volumes per sq. ft. based on ASF Actually Occupied, reveals a net volume capacity of 9.91 for all nine libraries; this closely equates with the CSU Space Formula of 10 volumes per sq. ft.

Percentage of Bookstacks Filled (page IV-27)

The nine libraries averaged between 85 to 92 percent filled and Stanislaus had the highest percentage at 90 to 100 percent filled followed closely by Long Beach. Los Angeles. and San Diego, with 90 to 95 percent filled.

Reader Station Differential (pages IV-27 through 28)

The net differential for all nine libraries between "Reported Occupied" and "Actually Occupied" was very small; there were only 616 or 3.41 percent less Reader Stations than reported.

Ratio of Technical Processing/Public Services ASF to Total Library Functions (page IV-28)

The net percentage of Technical Processing/Public Services Actually Occupied in comparison to Total Library Functions Actually Occupied. ranged from 24.83 percent at Pomona to a low of 6.50 percent at Long Beach.

Revisions To Library ASF Formula (See pages IV-28 and 29)

The CSU Library ASF Formula for Library Space. (See Figure 2. page II-7) includes 225 sq. Ft. per F.T.E. library staff for Technical Processing/ Public Services (also includes administrative services). The consultants suggest that this formula could be reduced to 200 sq. ft. or even 175 sq. ft. per F.T.E. library staff without impairing services.

The CSU Library Formula for Reader Station ASF is reasonable and adequate. but the actual or occupied space for many of the Reader Stations at the nine libraries surveyed has been compressed--by expanded space for bookstacks--into far less space than called for in the formula.

reader areas that are not condusive to study.

Section VI Twenty-Year Projections: Non-Traditional Bookstack Techniques

Impact of Electronic Publishing on Library Collection Growth

Given projections and trends in the electronic publishing market. the HBW consultants hold that the impact of electronic publishing on California State University's plans for zero library collection space growth and library collection growth in general over the next ten years is considered to be minimal.

Microform Use In Libraries (pages VI-5 through 6)

Given the related cost factors for conversion to microforms. the apparent preference of students and faculty for hard copy rather than microform format. and the efficienty of the proposed high density shelving of lesser used materials (including journal and serial holdings) the decision to minimize conversion to microforms in the CSU libraries is justified.

Factors Influencing High Density Storage and Weeding (pages VI-6 through VI-8).

Given CSU's proposal to transfer and maintain forty percent of the collection of each library in high density storage and to weed (deacquisition) the collection based in part on usage. in order to achieve zero total size for each library within ten years. the consultants suggested several criteria to be incorporated into a system plan for assigning materials to high density storage and for materials to be considered for weeding or discarding.

Recommendation for Non-Traditional Library Storage Facility For CSU Libraries (pages VI-56 through 57)

Based on the consultant's site visits and analysis of available products for high-density shelving, HBW Associates recommends that the single most effective product solution for the CSU libraries surveyed is the computer-controlled Automated Storage/Retrieval System (AS/RS). The AS/RS offers the advantage of Class "A" building within an industrial building cost frame. The consultant's building by building analysis combining the considerations of diverse materials forming the collections, the stress point of shelf fill percentage, the ASF utilization (library and tenant functions space), user requirements, and the goal of zero collection growth reveal a unique "fingerprint" that is best handled by the flexibility and effectiveness of the computer-controlled AS/RS.

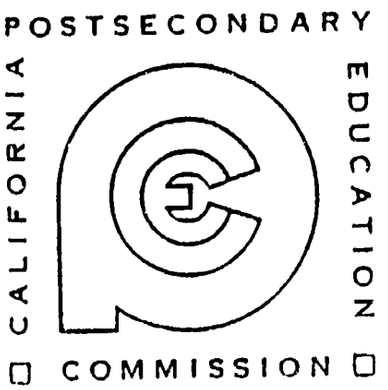
In conclusion, however, the consultants suggest the following:

A. Continued study and development of AS/RS for long term solution and eventual zero growth.

B. Begin review of expressed needs for space in libraries with reference to area potentially liberated by AS/RS system.

Appendix F Commission Comments, January 1985

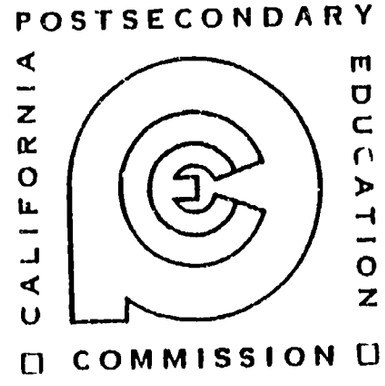
COMMENTS ON THE CALIFORNIA STATE UNIVERSITY'S LIBRARY SPACE STUDY



CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

COMMENTS ON THE CALIFORNIA STATE UNIVERSITY LIBRARY SPACE STUDY

A Report to the State University
in Response to Budget Control Language in the
1984-85 Budget Act



CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
1020 Twelfth Street, Sacramento, California 95814

Commission Report 85-3

Adopted January 21, 1985

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TABLES

INTRODUCTION

The 1984-85 Budget Act contains the following Budget Control Language for the Trustees of the California State University [Item 6610-001-146 (8)]:

> Prior to December 1, 1984, the CSU shall submit its completed library space study to the California Postsecondary Education Commission for review and comment. The CSU shall by February 1, 1985, submit a final report, including the commission's comments, to the chairperson of the committee in each house which considers appropriations and to the Chairperson of the Joint Legislative Budget Committee.

On December 11, 1984, the California State University submitted copies of its consultant's report, Systemwide Library Space Study for Period 1984-2004, to the Commission for review. The Commission's comments on that report consist of four parts:

1. Background on the Library Space Study.
2. Analysis of the Consultants' Report.
3. Responsiveness of the Study to the Needs of State Planners.
4. Conclusions.

BACKGROUND ON THE LIBRARY SPACE STUDY

The Trustees of the California State University requested more than $2 million in 1984-85 capital outlay expenditures on four campuses for planning additional library facilities that would cost some $48 million to complete. Instead of including planning funds for these projects in the 1984-85 Governor's Budget, the Department of Finance included $100,000 for a systemwide study of library space standards that would provide information on the State University's overall space needs for library collection and services:

> 06.48.139 Systemwide Library Study
>
> Funds are requested for a comprehensive study of library utilization, space use and operations to establish criteria which will permit evaluation of capital outlay proposals related to new facilities, remodeling of existing space and equipment needs.

The State's current standards for public higher education library facilities were drafted in 1966 by the Coordinating Council for Higher Education, the predecessor of the California Postsecondary Education Commission, and are produced in Appendix A. These standards envisioned the storage and retrieval

of hardcover materials as the chief function of academic libraries. Since then, however, library technology and services have changed: Automated information storage systems have been developed, and new information services for students and faculty have been introduced.

Because of the possibility that the 1966 standards are thus no longer appropriate, the Office of the Legislative Analyst recommended that the library space standards be reassessed and that the proposed study thoroughly evaluate these standards and assess the State University's library needs (display on the next page). Further, the Analyst recommended that the Commission review the study results, since the Coordinating Council had been involved in the development of the present standards.

In the 1984-85 Budget Act, the Legislature appropriated, and the Governor approved, $92,000 for this study. In drafting its "Invitation for Bid" on the Systemwide Library Space Study, the Division of Library Affairs of the Chancellor's Office of the State University, sought to meet the concerns for new criteria and reevaluated standards with a three-part study of library space on nine of the 19 campuses.

- The first part was to be "a comparative analysis of library space" in which the consultants would analyze and "explain differences between reported, actual, and formula generated information." In this part of the study, according to the Invitation for Bid (p. 8):

  > where appropriate, the consultant shall recommend changes which will minimize the differences between the data from these three sources (e.g., which functions require more or less space than currently provided by formula; are new standards required?; is there reason for a larger or smaller percent?; are there functions which are not treated by formula and what are their associated space requirements?).

- In the second part of the study, the consultant would project the space requirements of traditional open-stack facilities for the nine campuses over the twenty-year period from 1985-86 through 2004-05, based on the actual space they currently occupy and enrollment projections provided by the Chancellor's Office.

- In the third part, the consultants would examine the effects on library space requirements of three non-traditional bookstack techniques: remote compact storage, local compact storage, and local automated storage and retrieval systems.

On September 18, 1984, the Chancellor's Office awarded the contract for the study to HBW Associates, Inc., Library Planners and Consultants, of Dallas, Texas, with a due date of November 23.

In their report of the study, the consultants stated (p. i):

> The study was designed to address three problem areas:
>
> 1. Eliminate causes for crowded open stack library collections.

CALIFORNIA STATE UNIVERSITY—CAPITAL OUTLAY—Continued

Systemwide Library Study

We recommend approval of Item 6610-301-146(8), $100,000 for a systemwide study of library space needs in comparison to existing library space standards utilized by the CSU. We further recommend that the Legislature adopt Budget Bill language requiring the CSU to submit the completed library space study to the Postsecondary Education Commission for review/comment before submitting it to the Legislature.

The Trustees' 1984–85 capital outlay program included a total of $2,060,000 for planning additional library facilities on four CSU campuses. These projects have a combined total estimated project cost of $48.1 million. In addition, the Budget Bill includes $1,393,000 to provide additional library space at the Fullerton campus. The Trustees' budget did not request funds for a study of the system's library standards.

According to the Department of Finance, the planning funds for the individual campuses were not included in the Governor's Budget because existing library space standards need to be reevaluated before funds are devoted to individual campus library facilities. Instead, the budget requests $100,000 for a study of the existing standards for library space. The Department of Finance indicates that the purpose of the study is to provide sufficient information to the CSU, the administration, and the Legislature on the segment's overall space needs for library collection and library sevices.

Need for Library Study. The operation/space utilization of library facilities varies widely among the 19 CSU campuses, and recent technological changes in the processing and storage of library materials may affect the facilities' requirements for library capacity and services. For example, a substantial portion of some campuses' collection of library materials is contained on microfilm/microfiche, which substantially reduces space requirements. In addition, CSU has installed new automated information systems which should result in a more efficient use of library space.

Considering these factors we believe that it would be appropriate to reassess the CSU library space guidelines. The amount proposed should fund the necessary consultant services to thoroughly evaluate the library standards and assess the campus library needs throughout the CSU system. We therefore recommend approval of the requested funds.

Study Results Should be Submitted to the Postsecondary Education Commission and then to the Legislature. The library space guidelines used by CSU have been developed as a means to ensure that adequate and appropriate physical facilities are available at each campus. The current space guidelines and utilization standards were developed in concert with the California Postsecondary Education Commission (at that time, the Coordinating Council for Higher Education). The commission has the staff and expertise to provide a needed perspective on this subject. Accordingly, we believe that it would be desirable for the Postsecondary Education Commission to review and comment on the study of CSU library space guidelines. The CPEC's comments will aid the Legislature in evaluating future capital outlay proposals. We therefore recommend that the following Budget Bill language be adopted under this item:

"Provided that prior to December 1, 1984, the CSU shall submit its completed library space study to the California Postsecondary Education Commission for review and comment. The CSU shall by February 1, 1985, submit a final report, including the commission's comments, to the chairperson of the committee in each house which considers appropriations and to the Chairperson of the Joint Legislative Budget Committee."

Source: Office of the Legislative Analyst, 1984, pp. 1867-1868.

2. Develop collections on campuses of varying size, variety, flexibility, and academic strength in support of the local academic program.

3. Identify, plan and implement a systemwide zero growth library facility plan.

This "systemwide library facility plan" to which the consultants referred is a plan of the Division of Library Affairs of the Chancellor's Office. Instead of assuming continued expansion of library facilities, the plan calls for more library materials to be stored in a smaller space, resulting in no need for expanded space but considerable need for alternative methods of storage and access.

The consultants then proceeded to carry out the study to address these three problems by conducting visits to libraries on State University campuses at Dominguez Hills, Long Beach, Los Angeles, Northridge, Pomona, San Diego, Sacramento, San Francisco, and Stanislaus.

ANALYSIS OF THE CONSULTANTS' REPORT

Appendix B reproduces the principal findings and recommendations of the consultants. Their report can be summarized under three major headings:

1. Existing State University Library Space Functions.
2. Twenty-Year Space Deficit Projections for Bookstacks.
3. Nontraditional Bookstack Techniques Proposed to Solve the Space Deficit.

Existing State University Library Space Functions

To determine the appropriateness of the existing library space standards for the State University, actual State University library functions needed to be identified and evaluated. On visiting the campuses, the consultants found that five basic types of functions take up space in the libraries:

Bookstacks: the shelving needed for volumes contained in the library allocations.

Reader Stations: table, carrel, and other seating where library materials may be used.

Technical Processing and Public Services: staff and automated processing of information requests, administrative space and staff facilities for library personnel.

Multimedia or Audio-Visual Centers: areas for using electronic equipment for reviewing films and microforms and listening to tapes or records.

Tenant Functions: space originally designed for library use that is now being used for non-library purposes -- not including space that was first designated for non-library use. (This fifth category was not applicable to every State University library.)

Space formulas exist for three of these five library functions -- bookstacks, reader stations, and technical processing and public services, while space for multimedia and audio-visual centers is determined via "Program Justification" calculations. To determine the correct space for these library space functions, the appropriate formula for "assignable square footage" (ASF) listed at the bottom of Table 1 on the next page is used with the tabulations from the State University's "Library Assignable Square Footage Needs, 1983-84" reproduced as Table 1.

When library space for the three "formula-driven" areas is calculated for the nine libraries, all nine show a deficit of assignable square footage. Columns 13 and 14 of Table 1 highlight this situation. This deficit ranges from 16,945 assignable square footage (8.59 percent) at San Francisco to 23,000 assignable square footage (44.97 percent) at Stanislaus. The nine campuses have a total of 313,960 assignable square footage less than formula available for library operations -- approximately 18.75 percent less than they are allowed under current space standards.

This space deficit is further aggravated by the fact that at some campuses the amount of space available for formula-generated library functions is lessened due to the "tenant functions" housed in them. In the past, when new programs needed to be housed on a campus, the seemingly least crowded building -- often the library -- was chosen. Over the years, libraries have taken on a considerable number of tenant functions for which the space formulas generate no additions. Table 2 lists these functions by campus and the total square footage occupied by those functions.

A strong case can be made for retaining some of these services, such as tutoring and instructional media, in the libraries, but not for others like consumer bureaus or student grievance centers. Since so many of these tenant functions provide services for students and faculty, they would seem to be more appropriately housed in a Student Services Center or Student Union.

The consultants presented two sets of calculations which show the library space problems for all nine campuses. The first set shows what the library space deficit would be if all current tenant space reverted back to being space for library functions:

Total assignable square footage occupied plus tenant function space: 1,360,804

Total assignable square footage generated by current formula: 1,674,764

Assignable square footage difference: 313,960 (-18.75 percent)

The second set shows what the deficit would be if the tenant functions currently housed in the library buildings remain there, but have no space generated by formula for them:

Total assignable square footage occupied by library functions: 1,254,706

Total assignable square footage generated by current formula: 1,674,764

Assignable square footage difference: 420,058 (-33.48 percent)

TABLE 1 Library Assignable Square Footage (ASF) Needs, The California State University, 1983-84

CAMPUS	1 Countable Holdings 6/30/82	2 Collection ASF Space Standard (Need)	3 FTE 1983-84 Allocated	4 Reader Station ASF Space Standard (Need)	5 Existing* Collection and Reader Station ASF	6 ASF Deficit of Collection and Reader Station Need Col. 2 + 4-5	7 Proposed Staff Positions 1983/84	8 Staff and Technical Services ASF Space Standard (Need)	9 Existing* Staff and Technical Services ASF	10 ASF Deficit of Staff and Technical Services Space Col. 8-9	11 Total* ASF Space Needs Col. 2 + 4 + 8	12 Total* ASF Space Existing	13 Total ASF Deficit Col. 11-12	14 Percent of ASF Deficit $\frac{\text{Col. 13}}{\text{Col. 11}} \times 100$
Bakersfield	228,348	28,544	2,420	12,584	28,101	13,027	27.2	6,120	9,782	-3,662	47,248	37,883	9,365	19.82
Chico	574,717	71,840	12,500	65,000	136,498	342	83.0	18,675	27,637	-8,962	155,515	164,135	-8,620	-5.54
Dominguez Hills	272,968	34,121	5,800	30,160	42,166	22,115	48.1	10,823	9,609	1,214	75,104	51,775	23,329	31.06
Fresno	646,250	80,781	13,500	70,200	110,438	40,543	90.7	20,408	37,889	-17,481	171,389	148,327	23,062	13.46
Fullerton	539,538	67,442	15,600	81,120	81,089	57,473	105.4	23,715	27,642	3,927	172,277	118,731	53,546	31.08
Hayward	642,631	80,329	8,660	45,032	90,564	34,797	65.4	14,715	36,976	-22,261	140,076	127,540	12,536	8.95
Humboldt	291,609	36,451	6,580	34,216	85,499	-14,832	50.4	11,340	17,439	-6,099	82,007	102,938	-20,931	-25.52
Long Beach	798,894	99,863	22,000	114,400	170,921	43,342	145.7	32,783	31,147	1,636	247,046	203,992	43,054	17.43
Los Angeles	780,503	98,823	13,800	71,760	169,013	1,570	104.0	23,400	53,602	-30,202	265,743	222,615	43,128	16.23
Northridge	783,452	97,932	19,100	99,320	151,684	45,568	128.2	28,845	32,302	-3,457	226,097	183,986	42,111	18.63
Pomona	426,123	53,265	13,000	67,600	60,327	60,538	87.1	19,598	27,439	-7,841	140,463	87,766	52,697	37.52
Sacramento	727,172	90,897	16,900	87,880	80,642	98,135	114.0	25,650	67,975	-42,325	204,427	148,617	55,810	27.30
San Bernardino	348,248	43,531	3,850	20,020	66,655	-3,104	34.7	7,808	14,582	-6,774	71,359	81,237	-9,878	-13.84
San Diego	819,211	102,401	24,600	127,920	142,534	87,787	161.9	36,428	35,682	746	266,749	178,216	88,533	33.19
San Francisco	620,099	77,512	17,700	92,040	143,122	26,430	123.4	27,765	37,250	-9,485	197,317	180,372	16,945	8.59
San Jose **	735,720	91,965	18,000	93,600	188,944	-3,379	118.8	26,685	26,824	-139	212,250	215,768	-3,518	-1.66
San Luis Obispo	545,132	68,142	14,200	73,840	130,663	11,319	92.4	20,790	28,878	-8,088	162,772	159,541	3,231	1.98
Sonoma	337,210	42,151	4,400	22,880	55,757	9,274	38.1	8,573	17,085	-8,512	73,604	72,842	762	1.04
Stanislaus	224,794	28,099	3,220	16,744	22,908	21,855	31.0	6,975	6,869	106	51,818	28,518	23,300	44.97
Systemwide	10,342,699	1,291,089	235,830	1,226,316	1,967,605	552,800	1,619.3	371,096	540,609	-175,513	2,963,261	2,514,799	448,462	15.13

*Existing assigned square footage does not include space in old houses or temporary buildings. The only temporary space excluded is 1,339 assigned square footage in temporary buildings at Stanislaus.

**Existing assigned square footage excludes space which will be vacated in old library.

Note: The following formulas were used to calculate the numbers in columns 2, 4, and 8:

Total Stack Area:

The projected number of Bound volumes in the collection at the target year times the Bound volume area requested, plus 25 percent of the Bound volume area for Special Materials, or: Collectable holdings times .125.

Total Reader Station Area:

Standard reader stations (which is 90 percent of projected reader stations) times 25 square feet, plus Carrels (which is 10 percent of projected reader stations) times 35 square feet. Projected reader stations equals 20 percent of Full-Time Equivalent Students.

Technical Processing and Public Services Area:

The total area for technical processing and public services is equal to the projected personnel at the target year times 225 square feet.

Multimedia or Audio-Visual Center Area:

The proper amount of space for this function must be determined in the Program Justification.

Source: Adapted from HBW Associates, Inc., 1984, p. II-8.

TABLE 2 Tenant Functions Housed in Libraries on Nine State University Campuses

Campus	Function	Square Footage
Dominguez Hills	None	0
Long Beach	Faculty Development Rooms, Student Services and Academic Advising Center, Learning Assistance Centers, Educational Opportunity Program, Tutoring, Academic Affairs and Foundation, and School of Fine Arts Offices.	22,762
Los Angeles	Consumer Bureau, EPIC-Multicultural Pride, and Center for Public Resources.	2,645
Northridge	Instructional Media Center and Instructional Television Network.	18,981
Pomona	Computer Room, Learning Resources Centers, Vending Areas, Art Gallery, ROTC, and Disabled Students' Services Center.	9,474
Sacramento	Three academic classrooms.	1.614
San Diego	Student Affairs, Academic Senate Office, University Affairs, Academic Affairs, and Disabled Students' Services.	26,779
San Francisco	Faculty Offices, Student Grievance Office, Disabled Students' Services, Instructional Television, Associated Students, Media Access Center, and Educational Opportunity Program	23,843
Stanislaus	Not ascertained	unknown
Total Square Footage		106,098

Source: Adapted from HBW Associates, Inc., 1984, pp. iv-11 - iv-25.

If all tenant functions were removed from the libraries, and their space were used for actual library functions, the deficit would lessen significantly, even though it would still be substantial. However, if all these functions are retained in the libraries without generating any extra space, the libraries will continue to operate with only two-thirds of the space they are allotted under current formulas.

In sum, the consultants' report makes clear that the nine libraries have less space available to them than is justified under current formula. Tenant functions reduce that space even more. Based on the existing formulas for library space, the nine libraries should be expanded by the 313,960 square foot difference between formula-generated and actually occupied (including tenant functions) space. However, an important policy question is which, if any, of these tenant functions justify formula-generated space in the libraries.

Twenty-Year Deficit Projections for Bookstacks

In their report, the consultants offer projections over the next 20 years for the four library functions, based on the following data:

- countable collection holdings for 1983-84, plus annual projected library acquisitions for 1984-85;
- full-time equivalent enrollments for 1984-85;
- proposed staff positions per full-time equivalent student for 1983-84; and
- where applicable, multimedia or audio-visual space, as measured in the consultants' site studies.

These data enabled the consultants to make "steady state" projections, assuming that the rate of change existent in the base year will remain constant for the next two decades. Given these assumptions, and the assumption of no increases in assignable square footage for reader stations, technical processing and public services, or multimedia or audio-visual centers, the only footage increases over the 20 years will be for bookstacks. According to the consultants, the nine libraries studied will add more than 5.1 million bound volumes and 1.2 million other library materials during this period. Under existing standards, these additions would generate 641,402 more footage for book-stacks -- a 93.91 percent increase over book-stack space currently available.

Commission staff discussions with Tom Harris, State University Director of Library Affairs, pointed to a problem in these projections. They were based on information for the 1981-82 fiscal year (column 1, Table 1), which was the last year for which data were available to the consultants at the time of their report. Commission staff has revised these projections, based on figures for 1985-86 -- the year the consultants began their open bookstack projections.

When the base for the projections is these 1985-86 figures, the actual assignable square footage needs for bookstacks in that year total 811,046 assignable square feet -- 128,042, or 15.8 percent, more than the consultants used in their projections. With this difference included, the nine libraries' bookstack space needs in 2004-05 are projected to be 12 percent greater than the total calculated by the consultants. Table 3 shows the space need for bookstacks through 2004-05 on each of the nine campuses surveyed, based on these revised projections. The calculations on which this table is based appear in Appendix C.

TABLE 3 Projected Library Space Need for Bookstacks on Nine State University Campuses for the Year 2004-05

Campus	1985-86 Assignable Square Footage	Percent Increase	2004-05 Assignable Square Footage
Dominguez Hills	42,674	111.8%	90,383
Long Beach	118,129	83.4	216,649
Los Angeles	112,045	60.8	180,168
Northridge	11',571	77.3	203,134
Pomona	65,887	107.3	136,584
Sacramento	106,505	78.1	189,685
San Diego	122,746	90.1	233,340
San Francisco	93,660	94.6	182,262
Stanislaus	34,829	107.6	72,305

Source: Commission staff calculations based on actual allocations reported in "CSU Coded Memorandum, Budget Planning 84-79," published December 12, 1984, and calculated using the bookstack function space formula from Table 1.

Nontraditional Bookstack Techniques Proposed to Solve the Space Deficit

As these bookstack calculations show, information storage is one of the major problems facing the State University libraries. To solve it, the consultants evaluated two non-traditional bookstack methods -- remote and on-site compact storage facilities -- and local automated storage and retrieval systems in terms of four factors:

1. The impact of electronic publishing on library collection growth;
2. The use of microforms in campus libraries;
3. The assigning of library materials to high density storage; and
4. The deacquisition (weeding out) of some materials.

The consultants determined that neither of the first two factors -- electronic publishing and microforms -- affect the State University library space problem in any appreciable way. They did, however, rank six types of high-density storage (industrial, library, compact, carousel, hi-rise, and automated storage and retrieval system mini-load shelving) on five criteria: space utilization, transactions per hour, product dependability, ease of access, and annual storage costs. The results are displayed in Appendix D; and they recommended a set of guidelines for the deacquisition of materials, based in part on the Selective Book Retirement Program of Yale University.

The consultants then projected use for both remote and on-site compact storage and for automated storage and retrieval systems. For a variety of reasons, but particularly because of high square-footage utilization and accessibility, they recommended automated storage and retrieval systems for

use by the State University. These systems consist of fixed shelving with supporting columns up to 40 feet high from which an automatic picker on each column retrieves containers and delivers them to an aisle end-point. According to the consultants, these systems combine "the potential for on-line computer catalog search and browsing, high thru-put, and an advanced state of the art product (via industrial pioneering) with computer produced statistics on materials usage and lower construction and operational costs" (p. 13).

The State University is now developing a full report on these automated storage and retrieval systems, but without a more comprehensive analysis of them it is not possible to offer a sound recommendation in the area of "non-traditional" bookstack techniques. For example, the consultants state that the University of California operates a remote facility that combines hi-rise and industrial shelving designs, but they offer no cost comparisons between it and the proposed automated systems. In order to be helpful, the State University's study of automated storage and retrieval systems should project the total cost of converting library storage space at each of the 19 State University campuses to these systems versus a remote information storage system such as that at the University of California. A more extended look at the feasibility of a zero-growth material acquisition plan and electronic publishing and conversion to microforms would also be appropriate. The consultants discussed each of these concepts in a general way in their report but presented very little information that pertains specifically to the State University.

RESPONSIVENESS OF THE STUDY TO THE NEEDS OF STATE PLANNERS

As has been stated earlier, the Department of Finance and the Office of the Legislative Analyst both had specific and somewhat different expectations for the State University's study. The Department of Finance viewed it as a means to "establish criteria which will permit evaluation of capital outlay proposals related to new facilities, remodeling of existing space and equipment needs." The Analyst wanted the current library space guidelines reassessed:

> we believe that it would be appropriate to reassess the CSU library space guidelines. The amount proposed should fund the necessary consultant services to thoroughly evaluate the library standards and assess the campus library needs throughout the CSU system . . . . (1984, p. 1868, reproduced on page 3 above).

As previous pages have indicated, the consultants' study sought to do three things: eliminate open bookstack crowding, develop appropriate library collections, and design a systemwide zero-growth plan. Their report will help resolve these problem areas; but from the Commission's perspective, it does not fully address the expectations of the State officials who requested it. Not only does it fail to follow the suggestion of the Legislative

Analyst that the existing library space standards be "thoroughly evaluated"; it fails to propose an updated set of standards that the Department of Finance had wanted. It discusses the State University's library space generating formulas, but it does not evaluate the other aspects of library facilities planning standards. It offers no analysis of the evolution of library space usage patterns at the State University and no description of how developments in the State University over the past 19 years may have rendered the 1966 standards obsolete. Even in its discussion of the space generating formulas, it lacks in-depth analysis needed to evaluate them. For example, the State University's formula for technical processing and public services currently provides 225 assignable square footage for each full-time equivalent (FTE) library staff member. The consultants observed that the space "actually occupied" at the nine libraries studied is less than this, and they indicated how much space this function occupies on each campus. They stated (p. IV-28), "The formula for technical processing/public services (also includes administrative services) could be reduced to 200 sq. ft. and perhaps 175 sq. ft. for each FTE without impairing services." But this is their entire discussion of this proposed change.

Similarly, in summarizing the range of books per square foot observed, the consultants stated (p. IV-26), "The net volumes per sq. ft. based on ASF actually occupied, reveals a net volume capacity of 9.91 for all nine libraries; this closely equates with the CSU Space formula of 10 volumes per sq. ft." But they do not discuss either the appropriateness or accuracy of this formula.

State University officials informed Commission staff that at the time the language calling for the study was adopted, some confusion existed as to its precise meaning. In addition, it may be that in the short amount of time that the State University and its consultants were given to complete the study, no report as comprehensive as that expected by the Department of Finance and the Legislative Analyst could have been submitted. Nonetheless, given the expertise that the consultants showed in satisfying the expectations of the State University in its "Invitation for Bid", the Commission believes that the consultants could prepare a report that could satisfy the needs of State officials, given the proper direction. While analyzing the problem of information storage and proposing a system to meet this need is an important task, it was not the only one specified by these officials.

To meet the needs of State planners, the consultants might have performed a more extensive analysis of the five areas of library space use in order to develop library space standards appropriate for the rest of this century. They might well have addressed such questions as these:

- Given the goals of the State University's libraries, how many new functions must be performed that did not exist at the time the 1966 standards were adopted?

- Has the technology to deal with these functions changed enough to render the existing standards obsolete?

- Since the existing space generating formulas were developed based on the "8 a.m. to 5 p.m." full-time equivalent student as the sole student contact component, has the full-time/part-time student mix changed enough to warrant a re-evaluation of this component?

- Is it still feasible to store all the hardcover materials available to each campus in that campus' library, or would some type of central information storage facility better serve the system?

- And concerning the choice between storing information (particularly hardcover books) on campus or storing some of it off campus, how important is it that every library-accessible document be immediately available on campus for potential users?

More evaluation and analysis on such topics is needed in order for a revised set of standards to be adequate.

CONCLUSION

In summary, the Commission offers these observations:

1. The Department of Finance and the Legislative Analyst proposed the library space study to review and update, as necessary, library space standards for use in assessing the State University's capital outlay requests.

2. On passage of the 1984-85 Budget, interpretations of the budget language regarding the study differed between these State agencies and the State University.

3. The consultants' report does not fully satisfy the request of the agencies for a reevaluation of library space standards in light of changing needs and an updating of those standards.

4. The consultants pointed out a serious space deficiency for the State University's libraries, due in part both to the lack of formula-justified square footage for libraries and to the housing of tenant functions in the libraries. Unless a solution is found, this space deficit will increase over the next 20 years.

5. Since part of the libraries' space problem is due to their housing of tenant functions, the adequacy of State University policy pertaining to housing of these functions should be reexamined.

6. To resolve the problem of insufficient space for bookstacks, some nontraditional system of information storage -- and possibly automated storage and retrieval systems -- should be implemented, but only after a more thorough evaluation than that conducted in the Systemwide Library Space Study.

Appendix G State University Materials, January 1985

THE CALIFORNIA STATE UNIVERSITY

BAKERSFIELD · CHICO · DOMINGUEZ HILLS · FRESNO · FULLERTON · HAYWARD · HUMBOLDT
POMONA · SACRAMENTO · SAN BERNARDINO · SAN DIEGO · SAN FRANCISCO · SAN JOSE
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OFFICE OF THE CHANCELLOR
(213) 590-5501

1/31/85

The Honorable Walter W. Stiern
Chairman, Joint Legislative Budget Committee
State Capitol
Sacramento, California 95814

Dear Senator Stiern:

The 1984/85 Budget Act, [Item 6610-301-146 (8)] states:

> Prior to December 1, 1984, the CSU shall submit its completed library space study to the California Postsecondary Education Commission for review and comment. The CSU shall, by February 1, 1985, submit a final report, including the commission's comments, to the chairperson of the committee in each house which considers appropriations and to the Chairperson of the Joint Legislative Budget Committee.

The California State University has completed the above referenced study. The study was carried out by H.B.W. Associates Inc., Library Planners and Consultants. It was submitted, to and has been reviewed by, the California Postsecondary Commission. I believe you will find the following items which are enclosed responsive to the aforementioned Budget Act language:

1. California State University Library Space Study: Chancellor's Office Commentary.

2. The CSU Systemwide Library Space Study.

3. a) Comments on The California State University Library Space Study by the California Postsecondary Education Commission.

   b) Memorandum January 21, 1985 from HBW Associates Critique of CSU Space Calculations (space standards evaluation).

4. Automated Storage and Retrieval Technology as an Element in Planning for CSU Library Space Needs by the CSU Division of Library Affairs..

5. Cost contrast of CSU high density storage vs. UC remote storage.

If you have any questions concerning this material, please contact Dr. Thomas C. Harris of my staff (ATSS 635-5542), under whose direction this material was prepared.

Sincerely,

Ann Reynolds

W. Ann Reynolds
Chancellor

WAR:yb

Enclosures

cc: Members, Joint Legislative Budget Committee (14)
The Honorable John Vasconcellos, Chairman,
Assembly Ways and Means Committee (2)
The Honorable Alfred Alquist, Chairman
Senate Finance Committee (2)
Dr. William G. Hamm, Legislative Analyst
Mr. Jesse R. Huff, Director, Department of Finance
Mr. Patrick Callan, Director, California Postsecondary
Education Commission
Dr. William E. Vandament
Mr. D. Dale Hanner
Dr. James E. Jensen

CALIFORNIA STATE UNIVERSITY LIBRARY SPACE STUDY:
CHANCELLOR'S OFFICE COMMENTARY

The Charge:

Systemwide Library Study funds are requested for a comprehensive study of library utilization, space use and operations to establish criteria which will permit evaluation of capital outlay proposals related to new facilities, remodeling of existing space and equipment needs.

Budget Control Language

The 1984/85 Budget Act contains the following Budget Control for the Trustees of the California State University [Item 6610-301-146 (8)]:

> Prior to December 1, 1984, the CSU shall submit its completed library space study to the California Postsecondary Education Commission for review and comment. The CSU shall by February 1, 1985, submit a final report, including the commission's comments, to the chairperson of the committee in each house which considers appropriations and to the Chairperson of the Joint Legislative Budget Committee.

Schedule Problems

Budget language required that a comprehensive CSU library space study be submitted to CPEC by December 1, 1984. However, the required bid process could not be finalized and sent to vendors until August 24, 1984, and bids were not received, evaluated and awarded until September 24, 1984 (following state regulations). The consultants thus made their first site visit on September 27, 1984. This left nine weeks to visit campuses, collect data, audit campus library space, evaluate its use and relevant formula standards criteria, hold necessary meetings to clarify and verify findings, and write draft report for review and submit final report on November 27, 1984.

The above schedule, therefore, required decisions regarding what could or could not be accomplished in the time allocated. It was decided that the focus of the study should be centered only on the nine CSU campus libraries where data showed current library space deficits, and formula evaluation should not be completed until all space was audited. This latter evaluation was completed by HBW Associates and sent to the Chancellor's Office as a memorandum on January 21, 1985.

I. Study Findings

Rather than repeat in detail the findings of the CSU Systemwide Library Space Study, this commentary summarizes and addresses the principle issues involved.

1. Library Space Deficit Systemwide

The consultants found and CPEC confirmed, that significant library space deficits do indeed exist at the nine campus libraries studied. The consultants report a deficit of 313,960 assignable square feet (18.75%) using 1981/82 staffing enrollment and current CSU library space standards. Using 1985/86 data, CPEC concluded that the deficit was 12% greater than the consultants figure, or 442,000 assignable square feet below current standards.

2. Evaluation of CSU Library Space Standards

The discovered space deficit brings into question the validity of the library space standards for volumes. CPEC staff criticized the CSU Systemwide Space Study as being deficient in evaluating standards. This was an area of study, however, not completed by the consultants until January 21, 1985 (see attachment 3b). HBW Associates in this document very clearly state that the CSU standard of ten (10) volumes per square feet is valid (pp 1-3,5).

3. The remaining formula elements relating to library space are 1) reader stations, 2) technical processing and public service, and 3) multimedia or audio visual.

- Reader Stations

  The consultants recommend no revision to the Reader Station formula standard. Their findings suggest that once the reader station area is relieved of compression resulting from expanding book stacks, the current formula are standard is adequate.

- Technical Processing & Public Service

  The consultants propose a different methodology for calculating technical processing and public service needs through formula. They suggest reducing the 225 square feet per work station to 200 or 175 square feet per work station, but also make obligatory an additional element to provide auxiliary space.

The Chancellor's Office staff believe this to be a reasonable alternative and suggest that auxiliary space be program-oriented and justified on merit campus by campus. This would permit the development of innovative approaches to changing technology where appropriate such as, for example, interlibrary loan and computerized reference activities and teaching library research skills. It should be noted, however, that this is why the formula was originally set at 225 square feet per workstation. The difference between 175 square feet and 225 square feet is an estimated allowance for auxiliary space. The amount of auxiliary space is therefore fixed by FTE staff when 225 square feet is used. A separate element for auxiliary space leaves the issue open and requires staff work.

- Multimedia or Audio Visual Center

The consultants recommend that special space allowance be provided for campuses following a specific working definition for multimedia or audio visual services within the library. A separate multimedia or audio visual center within the CSU libraries should be designated as such the consultants argue, 1) only if: it is so recognized in the library administrative structure; 2) it primarily serves students with software of all types including audio, video, sound filmstrip, etc., with permanently wired carrels or tables for listening/viewing; and 3) it includes a separate service

desk and a professional librarian in charge who is designated as media resources librarian.

Chancellor's Office staff concurs with this recommendation.

4. Tenant Functions

With regard to tenant functions, the CSU agrees with the findings of both HBW Associates Inc. and The California Postsecondary Education Commission. At issue are non-library functions assigned to or occupying space provided by systemwide library formula. A total of 106,098 square feet of space explicitly provided for libraries by systemwide library space formulas have been assigned for other functions also desperately in need of space. CSU will review its policy on this matter and will endeavor to find appropriate alternatives for assigning such space, particularly before requesting new space for library functions. Thus the current deficit is actually 351,600 square feet following CPEC calculations of 12% higher than HBW Associates (313,960 square feet) using latest data (1985/86).

II. Additional Findings and Recommendations

The two final documents also included in response to comments and recommendations made by The California Postsecondary Education Commission are 1) Automated Storage and Retrieval Technology as an Element in Planning for CSU Library Space Needs and 2) Cost Contrast of CSU High Density Storage vs. U.C. Remote Storage. These two documents are attachments respectively numbered 4 and 5.

The first proposes dynamic CSU library facilities to accommodate the handling of library materials which provide for stabilizing the local as well as the systemwide total holdings inventory. The CSU Northridge library facility currently being requested in large part is a prototype of this approach.

The second explains the difference between the CSU and UC approach and offers a cost contrast only because CPEC stated that such was necessary. CSU believes a true cost comparison is not valid due to different mission and goal. Facility construction using actual cost data pertaining to the UC

remote site construction and CSU construction costs provided by private contracting firms as well as actual storage statistics for both showed that on a cost per volume basis CSU construction costs will be approximately $1.47 per volume while U.C.'s costs are approximately $3.39 per volume. Finally there is no indication that the UC storage plan significantly impacts local or campus library facility building programs in as much as new class A type library buildings are programmed at UC Davis, San Francisco and Berkeley.

III. Conclusion

The consultant HBW Associates, The California Postsecondary Education Commission and the California State University confirmed the validity of CSU's current library space standards and the large nine campus library space deficit of more than 350,000 assignable square feet. In view of the CSU approach to developing library facilities to substantially control construction and program costs CSU should be permitted to include at CSU Northridge the prototype high density library facility with the view towards developing a systemwide library program.

January 21, 1985

Dr. Tom Harris, Director
Division of Library Affairs
Office of the Chancellor
The California State University
400 Golden Shore
Long Beach, California 90802

RE: Critique of CSU Space Calculations for Library ASF

Dear Dr. Harris:

HBW is pleased to respond to your request for an expanded critique of the CSU Space Calculations for Library ASF. The short turn-around time on our November 1984 Systemwide Library Space Study constrained our critique although our findings generally supported and confirmed the CSU calculations. We've now had more time to review the study findings and can elaborate on the various elements in the CSU calculations as outlined below.

1) Bookstack Space

The CSU calculation calls for 10 bound volumes per sq. ft. plus an allowance of 25% for Special Materials other than bound volumes. This assumes open book stacks, the majority of which are 90" high steel, bracket-type shelving with aisles that are approximately 36" wide.

The 10 bound volumes per sq. ft. compares closely with general "gross shelving" planning guidelines such as the following by type of library based on HBW's experience:

Type of Library	Estimated Volumes Per Sq. Ft.
Public Libraries	15 to 20
Academic and Research Libraries	10 to 15
Special Libraries such as Law and Medical	5 to 8
Libraries in general	15 to 18

The eminent library building consultant and academic librarian, Keys Metcalf, qualified the bookstack shelving formula for academic libraries, stating, ..."that 10 volumes per square foot (should) be used for small undergraduate collections of 50,000 volumes or less with completely open access. Not more than 12 volumes per square foot should be used for larger undergraduate collections of up to 100,000 volumes." (Keyes D. Metcalf, Planning Academic and Research

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HBW Associates, Inc. Library Planners and Consultants

Library Buildings, McGraw-Hill, 1965, p.157). Metcalf adds the admonition: "Beware of formulas. libraries differ, and there is no satisfactory substitute for consideration of the individual case by an expert librarian, library consultant, or architect." (Metcalf, p. 157). Current barrier-free requirements for library planning are reducing the volume capacities noted above. Barrier-free planning to accommodate handicapped users and staff are requiring more floor space (i.e. ANSI, Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People, American National Standards Institute, 1980) calling for 42" clear bookstack aisles (instead of the typical 36" aisles) to accommodate users in wheelchairs. Many federal library grant programs now require compliance with these barrier-free criteria as condition for the grant. The wider aisles reduce the volume capacity per sq. ft. lowering the previously cited bookstack formulas. The net effect calls for bookstack ranges to be 5'6" on centers for the 42" aisles as opposed to the earlier 4'6" centers for the traditional 36" aisles.

HBW's space study of the nine initial CSU libraries calculated the bookstack capacity and determined that while the overall volume capacity ranged from a low of 7.59 vols. per sq. ft. to a high of 14.71 vols. per sq. ft. depending on the bookstack layout and shelving density (See Table 2, page IV-31), the gross average number of volumes per sq. ft. was 9.92 or within one tenth of the CSU calculation of 10 vols. per sq. ft. Considering that the libraries have a variety of shelving heights ranging from 42"H to 90"H this compares closely with the criteria used by library planners. In his book Furnishing the Library Interior (Marcel Dekker, 1980), William S. Pierce, Director of the University Libraries, The Pennsylvania State University, states that some planners have projected housing 100 volumes per 90" high metal shelving section (assuming 7 shelves or 21 linear feet of shelving each housing 7 volumes per linear foot and each shelf about two-thirds full for a total of 100 volumes per section (p. 48). For a 90" high stack, this translates into about 13.3 volumes per sq. ft. assuming 12" deep shelves and 36" aisles (i.e. a double-faced stack with 200 vols. - by 15 sq. ft. = 13.3 vols. per sq. ft.)

The above calculation by Pierce assumes bookstacks that are two-thirds full. He states "that Penn States's shelves are at practical capacity when they are 80 percent full. (p. 149). Metcalf supports this 80 percent figure. Pierce notes that "When shelves are full beyond that point, so much money must be spent on shelf maintenance with constant shifting to accommodate new acquisitions that most libraries will consider 80 percent a practical maximum. It is important to point out that HBW's space study of the nine initial CSU libraries

revealed that the average library had between 85.5 to 92.2 percent of the bookstacks filled and four of the libraries' bookstacks were over 95 percent filled. (Table 3, p. IV-32); added shelving is needed to relieve over crowded bookstacks. The Stanislaus Library had some bookstacks filled to 100 percent capacity and to help alleviate the crowded condition, the library had turned the books on the three bottom shelves spine-up to make room for the addition of an eighth shelf to the typical seven shelf ranges.

HBW concludes that the present CSU calculation for bookstack space is valid in terms of contemporary library planning standards, the experience of other university libraries and the calculation is verified by the initial space study. However, additional shelving is needed to relieve overcrowded bookstacks.

2) Reader Stations

The CSU Calculations call for the provision of reader stations for 20% of the FTE student enrollment (this complies with the ACRL criteria). CSU calculates 90% of the resulting reader stations at 25 sq. ft. and the remaining 10% at 35 sq. ft. for larger, special function reader stations such as audio-visual, computer terminals, and microform machine carrels. The 25 sq. ft. space allowance for reader seating at tables is a commonly used standard for public and academic libraries, especially undergraduate libraries. (Cohen, Designing and Space Planning For Libraries, Bowker, 1979, pgs. 83-84.) The 35 sq. ft. allowance for special function reader stations is only minimally adequate as some machine carrels (microform readers, computer terminals) require up to 45 sq. ft. and lounge seating generally requires 40 sq. ft.

The HBW consultants did not recommend any revisions to the CSU reader station calculations but noted that "the actual or occupied space for many of the reader stations in the libraries surveyed has been compressed by expanded space for bookstacks into far less space (i.e. 25 sq. ft. and 35 sq. ft.) than called for in the formula." (page IV-29).

3) Technical Processing and Public Services

The CSU Calculations call for 225 sq. ft. per FTE library staff to provide space for all staff offices, work rooms, service desks, staff rooms, staff conference rooms, storage areas for materials in process etc. This particular calculation poses a problem in that it includes staff support or auxilliary library spaces that are not included in traditional staff work space formulas. Traditional staff work space formulas normally only provide space for the "immediate work area;" the "immediate work areas" typically only include space for a desk, chair, shelving, file cabinet and one or two guest

chairs; too, the traditional formulas do not include an allowance for traffic around the work station.

While there is no single formula for staff work space, most library planners (e.g. Metcalf pgs. 129-132) cite from 125 to 150 sq. ft. of space for library staff as a general guide. The planners (e.g. Metcalf pg. 129-132 and Pierce pg. 64-65) suggest specific sq. ft. for specific types of staff (e.g. administrative offices 125-250 sq. ft.; secretary 125 sq. ft. with additional space for a reception room, etc.) These traditional formulas do not include the traffic areas or the considerable staff support auxilliary library spaces (staff conference rooms, staff rooms, storage areas for processing circulation desk service counters or circulation sorting rooms, etc.) that are included in the CSU's 225 sq. ft. calculation for staff space. This difference between the CSU staff space calculation and the more commonly used formulas can result in misleading interpretations. The HBW space study noted, for example, that the 225 sq. ft. calculation for each staff appeared excessive and suggested it could be reduced to 200 sq. ft. or perhaps to 175 sq. ft. without impairing services (pg. IV-28). That recommendation assumed, however, that the reduced calculation would be interpreted as only applying to the immediate work space and not to other staff support or auxilliary spaces. A more exacting recommendation would require more intensive analysis of staff work areas (by type) than was permitted in the initial space study. More analysis is needed to determine the impact of automation on the staff work space requirements, especially in circulation, cataloging and online public access catalog areas; these particular work and public services areas deserve special attention in terms of more effective space utilization as they were not originally designed to accommodate this level of automation.

Generally library space calculations include specific library space allowances for staff support and auxilliary spaces such as the staff room, circulation service desk/work room, conference rooms and cataloging/technical processing areas, etc. in addition to formula based space allocation formulas for administrative and office staff, and individual office or work stations for other staff.

HBW recommends that the CSU calculation for Technical Processing and Public Services be revised to include two related factors:

1) An allowance by type of assignable staff support or auxilliary space such as staff room, circulation service desk/work room, conference rooms, etc.

2) Either a revised (and reduced) gross sq. ft. allowance for other FTE staff or specific space recommendations by type of library staff such as administrative and office staff, cataloger staff, reference librarians, etc.

4) Multimedia or Audio-Visual Center

The CSU Calculation calls for multimedia or audio-visual center space provided it has been approved in the Program Justification for the respective library. As part of its initial space study, HBW proposed the following "working" definition for multimedia or audio-visual center space: A separate multimedia or audio-visual center within the CSU libraries shall be so designated as such only if it is primarily so recognized in the library administrative structure, primarily serves students with software of all types including audio, video, sound filmstrip, etc. with permanently wired carrels or tables for listening/viewing, a separate service desk and professional librarian-in-charge designated as media resources librarian. Using this definition, HBW's consultants identified multimedia or audio-visual centers at two of the initial libraries surveyed, namely Long Beach and Sacramento.

HBW recommends that the CSU administration and library staffs review and revise this "working" definition for multimedia or audio-visual centers and continue to use this element in it space calculations.

Summary of CSU Space Calculation Critique

HBW's space study of the initial nine CSU libraries generally supports and confirms the present CSU Space Calculations for Library ASF, but some of the elements in the formula should be revised to make it even more effective:

Bookstack Space

The calculation for bookstack space is valid in terms of contemporary library planning standards, the experience of other university libraries, and the calculation is verified by the initial space study. However, additional shelving is needed to relieve overcrowded bookstacks.

Reader Stations

No revisions are recommended to this element but HBW noted that the present reader station space is compressed in many of the initial libraries by the expansion of the bookstacks.

Technical Processing and Public Services
The present CSU calculation for FTE library staff can be misleading in that it includes staff support and auxilliary spaces that are not included in the commonly used formulas for library staff. HBW recommends that this element be revised to include two related space factors: 1) specific assignable staff support or auxilliary space such as staff room, circulation service desk/work room, conference rooms, etc. and 2) either revised gross sq. ft. allowance per other FTE staff or specific space recommendations by type of staff.

Multimedia or Audio-Visual Center
HBW recommends that this space element continue to be included on an individual library basis as approved in the Program Justification and that the "working definition" for multimedia or audio-visual centers be reviewed and revised as needed.

HBW thanks CSU for this opportunity to further amplify this critique of the Space Calculations now that we have had more time to review the data and findings from the initial space study.

Sincerely,

Lee B. Brawner
Library Consultant

cc: Evan A. Reader, CSU
Richard L. Waters, HBW
Ronald Sigler, HBW
Scott Cherry, HBW

Appendix H ACRL College Library Standards, 1986

Standards for college libraries, 1986

Prepared by the College Library Standards Committee

Jacquelyn M. Morris, Chair

The final version approved by the ACRL Board of Directors.

The Standards for College Libraries were first prepared by a committee of ACRL, approved in 1959, and revised in 1975. This new revision was prepared by ACR 's Ad Hoc College Library Standards Committee. Members are Jacquelyn M. Morris, University of the Pacific (chair); B. Anne Commerton, State University of New York at Oswego; Brian D. Rogers, Connecticut College; Louise S. Sherby, Columbia University; David B. Walch, California Polytechnic State University; and Barbara Williams-Jenkins, South Carolina State College.

Foreword

These Standards were approved as policy by the ACRL Board of Directors at the ALA Midwinter Meeting in Chicago on January 19, 1986. They supersede the 1985 draft Standards published in *C&RL News*, May 1985, and the 1975 Standards published in *C&RL News*, October 1975.

The Ad Hoc Committee was appointed in 1982 to examine the 1975 Standards with particular attention to the following areas:

a. Non-print collections and services;

b. Collections (Formula A), Staff (Formula B), and Budget (% of Education & General);

c. Networking and cooperative associations;

and to recommend revisions which would bring them up to date and make them more generally useful.

The Committee studied each standard in terms of the charge and reviewed several recent studies on the subject of Standards, including:

Larry Hardesty and Stella Bentley, *The Use and Effectiveness of the 1975 Standards for College Libraries: A Survey of College Library Directors* (1981).

Ray L. Carpenter, "College Libraries: A Comparative Analysis in Terms of the ACRL Standards," *College & Research Libraries* 42 (January 1981):7–18.

"An Evaluative Checklist for Reviewing a College Library Program, Based on the 1975 Standards for College Libraries," *C&RL News*, November 1979, pp. 305–16.

The Committee also published a call for comments on the 1975 Standards (*C&RL News*, December 1983) and held hearings at the 1984 ALA Midwinter Meeting and the 1985 ALA Annual Conference.

One of the primary issues with which the Committee has dealt is the effect of new technology on the Standards. While no one predicts the immediate demise of books as we know them, one cannot ignore the multiplicity of formats in which information appears. For example, will the emerging body of online reference tools eventually make it possible for libraries to provide comparable or improved service with smaller book collections?

Access to the major bibliographic utilities is another issue related to technology and libraries. In an information-rich society, does lack of access to these utilities have a detrimental effect on the scholarly programs college libraries are attempting to support? How should the Standards address this lack of concern?

A similar related issue centers on resource shar-

ing and networking. Through access to the emerging "National Database" (defined as the totality of OCLC, RLIN, WLN, and LC) we have greatly increased our knowledge of other libraries' collections. Online identification and location of needed material has shortened the retrieval time. Electronic mail will have a similar impact on resource sharing. Since even the largest libraries find it difficult to collect comprehensively, resource sharing has become an increasingly common fact of life. The 1975 Standards placed a very high value on browsability and immediate access to materials, whereas resource sharing is somewhat contradictory to this concept. On the other hand, cooperative agreements allow for exposure and access to vastly more extensive resources than was hitherto possible.

The Committee discussed extensively the topic of performance measures. While the library directors surveyed and reported in the Hardesty-Bentley article stressed the need for performance measures in the College Library Standards, the Committee concluded that providing them *at this point* is beyond the scope of its charge. Obviously, however, this is a concept whose time has come: the ACRL Ad Hoc Committee on Performance Measures for Academic Libraries, chaired by Virginia Tiefel, has received a five-year appointment which gives some indication of the complexity of the task. The library profession should monitor and support the work of this ad hoc committee.

Some sentiment has been expressed for standards with less emphasis on quantitative measures, patterned after the more abstract "Standards for University Libraries" (*C&RL News*, April 1979, pp. 101–10). While there are certain advantages to standards written in this way, the vast majority of those expressing opinions to the Committee supported the quantitative measurements provided for in the College Library Standards. Most who expressed this view cited Carpenter's findings, noting that a very large percentage of college libraries fail to meet minimum standards in terms of collection size, staff size or budget. Consequently, prescribed goals continue to be regarded by librarians as an important component of the Standards.

While many statements have been modified in these Standards, certain important points should be noted. For example, while the 1975 Standards addressed collection size, they did not address serial subscriptions, on which it is not unusual now for a library to spend half or more of its annual materials budget. Each Standard has been reviewed in light of library technology, networking, and resource sharing, and audiovisual materials. The inclusion of these aspects of libraries has been addressed in Standard 2, Collections; Standard 3, Organization of Material; Standard 6, Facilities; and Standard 8, Budget.

Introduction to the standards

Libraries have long been considered an integral and essential part of the educational programs offered by colleges. Their role has included collecting the records of civilization and documentation of scientific pursuit. An equally important role is to offer various programs to teach or assist users in the retrieval or interpretation of these records and documents. These information resources are essential for members of the higher education community to pursue their academic programs successfully. Total fulfillment of these roles is, however, an ideal goal which continues to be sought and is yet to be attained. Expectations as to the degree of success in achieving this goal vary from institution to institution, and it is this diversity of expectations that prompts the library profession to offer standards for college libraries.

The Standards seek to describe a realistic set of conditions which, if met, will provide a college library program of good quality. Every attempt has been made to synthesize and articulate the library profession's expertise and views of the factors contributing to the adequacy of a library's budget, resources, facilities, and staffing, and the effectiveness of its services, administration, and organization.

These Standards are intended to apply to libraries supporting academic programs at the bachelor's and master's degree levels. They may be applied to libraries at universities which grant a small number of doctoral degrees, say, fewer than ten per year. They are not designed for use in two-year colleges, larger universities, or independent professional schools.*

The eight sections of the 1975 College Library Standards have been retained, and include:

1. Objectives
2. Collections
3. Organization of Materials
4. Staff
5. Services
6. Facilities
7. Administration
8. Budget

Each standard is followed by commentary intended to amplify its intent and assist in its implementation.

Whenever appropriate, the terminology and definitions in the ANSI Z39.7 Standards published in 1983 have been used.

Standard 1: Objectives

1 *The college library shall develop an explicit*

*Specifically these Standards address themselves to institutions defined by the Carnegie Commission on Higher Education as Liberal Arts Colleges I and II and Comprehensive Universities and Colleges I and II. See the revised edition of *A Classification of Institutions of Higher Education* Berkeley, Calif.: The Council, 1976.

statement of its objectives in accord with the goals and purposes of the college.

Commentary

The administration and faculty of every college have a responsibility to examine the educational program from time to time in light of the goals and purposes of the institution. Librarians share this responsibility by seeking ways to provide collections and services which support those goals and purposes. Successful fulfillment of this shared responsibility can best be attained when a clear and explicit statement of library objectives is prepared and promulgated so that all members of the college community can understand and evaluate the appropriateness and effectiveness of the library program.

1.1 *The development of library objectives shall be the responsibility of the library staff, in consultation with members of the teaching faculty, administrative officers, and students.*

Commentary

The articulation of library objectives is an obligation of the librarians, with the assistance of the support staff. In developing these objectives the library should seek in a formal or structured way the advice and guidance of its primary users, the faculty and students, and of the college administration, in particular those officers responsible for academic programs and policies.

1.2 *The statement of library objectives shall be reviewed periodically and revised as necessary.*

Commentary

In reviewing the objectives of the library, careful attention should be paid to ongoing advances in the theory and practice of librarianship. Similarly, changes occurring within the education program of the parent institution should be reflected in a timely way in the program of the library.

Standard 2: The collections

2 *The library's collections shall comprise all types of recorded information, including print materials in all formats, audiovisual materials, sound recordings, materials used with computers, graphics, and three-dimensional materials.*

Commentary

Recorded knowledge and literary or artistic works appear in a wide range of formats. Books represent extended reports of scholarly investigation, compilations of findings, and summaries prepared for instructional purposes. The journal communicates more recent information and is particularly important to the science disciplines. Reports in machine-readable form are an even faster means of research communication. Government documents transmit information generated by or at the behest of official agencies, and newspapers record daily activities throughout the world.

Many kinds of communication take place primarily, or exclusively, through such media as films, slide-tapes, sound recordings, and videotapes. Microforms are used to compact many kinds of information for preservation and storage. Recorded information also exists in the form of manuscripts, archives, databases, and computer software packages. Each medium of communication transmits information in unique ways, and each tends to complement the others.

The inherent unity of recorded information and its importance to all academic departments of an institution require that most, if not all, of this information be selected, organized and made available for use by the library of that institution. In this way the institution's information resources can best be articulated and balanced for the benefit of all users.

2.1 *The library shall provide as promptly as possible a high percentage of the materials needed by its users.*

Commentary

While it is important that a library have in its collection the quantity of materials called for in Formula A, its resources ought to be augmented whenever appropriate with external collections and services. A library that meets part of its responsibilities in this way must ensure that such activities do not weaken a continuing commitment to develop its own holdings. There is no substitute for a strong, immediately accessible collection. Moreover, once a collection has attained the size called for by this formula, its usefulness will soon diminish if new materials are not acquired at an annual gross growth rate of from two to five percent. Libraries with collections which are significantly below the size recommended in Formula A should maintain the 5% growth rate until they can claim a grade of A (see Standard 2.2). Those that meet or exceed the criteria for a grade of A may find it unrealistic or unnecessary to sustain a 5% growth rate.

The proper development of a collection includes concern for quality as well as quantity. A collection may be said to have quality for its purposes only to the degree that it possesses a portion of the bibliography of each discipline taught, appropriate in quantity both to the level at which each is taught and to the number of students and faculty members who use it. While it is possible to have quantity without quality, it is not possible to have quality without quantity defined in relation to the characteristics of the institution. No easily applicable criteria have yet been developed, however, for measuring quality in library collections.

The best way to preserve or improve quality in a college library collection is to adhere to rigorous standards of discrimination in the selection of materials to be added, whether as purchases or gifts. The collection should contain a substantial portion of the titles listed in standard bibliographies for the curricular areas of the institution and for support-

ing general fields of knowledge. Subject lists for college libraries have been prepared by several learned associations, while general bibliographies such as *Books for College Libraries* are especially useful for identifying important retrospective titles. A majority of the appropriate, current publications reviewed in scholarly journals and in reviewing media such as *Choice* or *Library Journal* should be acquired. Careful attention should also be given to standard works of reference and to bibliographical tools which describe the broad range of information sources.

Institutional needs for periodical holdings vary so widely that a generally applicable formula cannot be used, but in general it is good practice for a library to own any title that is needed more than six times per year. Several good lists have been prepared of periodical titles appropriate or necessary for college collections. Katz's *Magazines for Libraries* describes 6,500 titles, of which approximately ten percent may be regarded as essential to a broad liberal arts program for undergraduates. To this estimate must be added as many titles as are deemed necessary by the teaching faculty and librarians to provide requisite depth and diversity of holdings. It may not be necessary to subscribe to certain less frequently used titles if they are available at another library nearby, or if needed articles may be quickly procured through a reliable delivery system or by electronic means.

The library collection should be continually evaluated against standard bibliographies and evolving institutional requirements for purposes both of adding new titles and identifying for withdrawal those titles which have outlived their usefulness. No title should be retained for which a clear [illegible]ot evident in terms of academic progra[illegible]ra-curricular enrichment.

Although the scope and content of the collection is ultimately the responsibility of the library staff, this responsibility can be best fulfilled by developing clear selection policies in cooperation with the teaching faculty. Moreover, the teaching faculty should be encouraged to participate in the selection of new titles for the collection.

2.2 *The amount of print material to be provided by the library shall be determined by a formula (see Formula A) which takes into account the nature and extent of the academic program of the institution, its enrollment, and the size of the teaching faculty. Moreover, audiovisual holdings and annual resource sharing transactions should be added to this volume count in assessing the extent to which a library succeeds in making materials available to its users.*

Commentary

A. Print resources

A strong core collection of print materials, augmented by specific allowences for enrollment, faculty size, and curricular offerings, is an indispensable requirement for the library of any college. The degree to which a library meets this requirement may be calculated with Formula A.

B. Audiovisual resources

The range, extent and configuration of nonprint resources and services in college libraries varies widely according to institutional needs and characteristics. Although audiovisual materials may constitute an important and sometimes sizable part of a library collection, it is neither appropriate nor possible to establish a generally applicable prescriptive formula for calculating the number of such items which should be available.

FORMULA A—

1. Basic collection	85,000 vols.
2. Allowance per FTE faculty member	100 vols.
3. Allowance per FTE student	15 vols.
4. Allowance per undergraduate major or minor field*	350 vols.
5. Allowance per master's field, when no higher degree is offered in the field*	6,000 vols.
6. Allowance per master's field, when a higher degree is offered in the field*	3,000 vols.
7. Allowance per 6th year specialist degree field*	6,000 vols.
8. Allowance per doctoral field*	25,000 vols.

A "volume" is defined as a physical unit of a work which has been printed or otherwise reproduced, typewritten, or handwritten, contained in one binding or portfolio, hardbound or paperbound, which has been catalogued, classified, or otherwise prepared for use. Microform holdings should be converted to volume-equivalents, whether by actual count or by an averaging formula which considers each reel of microfilm, or ten pieces of any other microform, as one volume-equivalent.

*For example of List of Fields, see Gerald S. Malitz, *A Classification of Instructional Programs*. Washington, D.C.: National Center for Education Statistics, 1981.

Audiovisual holdings may be counted as bibliographic unit equivalents and this number should be added to that for print volumes and volume-equivalents in measuring a library's collection against Formula A. These materials include videocassettes, films, and videodisks (1 item = 1 BUE), sound recordings, filmstrips, loops, slide-tape sets, graphic materials including maps, and computer software packages (1 item = 1 BUE); and slides (50 slides = 1 BUE). If some or all of this material is housed in an administratively separate media center or audiovisual facility, it may be included in the grade determination if properly organized for use and readily accessible to the college community.

C. Resource sharing

The extent of resource sharing through formal cooperative arrangements among libraries should be recognized in any assessment of the ability of a library to supply its users with needed materials. Annual statistics of resource sharing should be added to print and audiovisual holdings for purposes of grade determination, as follows:

1. Number of books or other items borrowed through ILL channels or from other sources, including film and videocassette rental agencies.

2. Number of items borrowed from a nearby library with which a formal resource sharing arrangement is in effect.

D. Determination of grade

The degree to which a library provides its users with materials is graded by comparing the combined total of holdings (volumes, volume-equivalents, and bibliographic unit equivalents) and resource sharing transactions with the results of the Formula A calculation. Libraries which can provide 90 to 100 percent of as many volumes as are called for in Formula A, augmenting that volume count with figures from Section B and C, shall be graded A in terms of library resources. From 75 to 89 percent shall be graded B; 60 to 74 percent shall be graded C; and 50 to 59 percent shall be graded D.

Standard 3: Organization of materials

3 *Library collections shall be organized by nationally approved conventions and arranged for efficient retrieval at time of need.*

Commentary

The acquisition of library materials comprises only part of the task of providing access to them. Collections should be indexed and arranged systematically to assure efficient identification and retrieval.

3.1 *There shall be a union catalog of the library's holdings that permits identification of items, regardless of format or location, by author, title, and subject.*

Commentary

The union catalog should be comprehensive and provide bibliographic access to materials in all formats owned by the library. This can best be accomplished through the development of a catalog with items entered in accord with established national or international bibliographical conventions, such as rules for entry, descriptive cataloging, filing, classification, and subject headings.

Opportunities of several kinds exist for the cooperative development of the library's catalog. These include the use of cataloging information produced by the Library of Congress and the various bibliographic utilities. It may also include the compilation by a number of libraries of a shared catalog. Catalogs should be subject to continual editing to keep them abreast of modern terminology and contemporary practice.

3.1.1 *The catalog shall be in a format that can be consulted by a number of users concurrently.*

Commentary

A public catalog in any format can satisfy this Standard if it is so arranged that the library's users normally encounter no delay in gaining access to it. While this is rarely a problem with the card catalog, the implementation of a microform, book, or online catalog requires that a sufficient number of copies (or terminals) be available to minimize delay in access at times of heavy demand.

3.1.2 *In addition to the union catalog there shall also be requisite subordinate files to provide bibliographic control and access to all library materials.*

Commentary

Proper organization of the collections requires the maintenance of a number of subordinate files, such as authority files and shelf lists, and of complementary catalogs, such as serial holdings records. Information contained in these files should also be available to library users. In addition, the content of library materials such as journals, documents, and microforms should be made accessible through indexes in printed or computer-based format.

3.2 *Library materials shall be arranged to provide maximum accessibility to all users. Certain categories of materials may be segregated by form for convenience.*

Commentary

Materials should be arranged so that related information can be easily consulted. Some materials such as rarities, manuscripts, or archives, may be segregated for purposes of security and preservation. Materials in exceptionally active use, reference works, and assigned readings, may be kept separate as reference and reserve collections to facilitate access to them. Audiovisual materials,

maps, and microforms, are examples of resources that may be awkward to integrate physically because of form and may need to be segregated from the main collection. Fragmentation of the collections should be avoided wherever possible, however, with the bulk of the collections shelved by subject in open stack areas to permit and encourage browsing.

3.3 *Materials placed in storage facilities shall be readily accessible to users.*

Commentary

Many libraries or groups of libraries have developed storage facilities for low-use materials such as sets or backruns of journals. These facilities may be situated on campus or in remote locations. The materials housed in these facilities should be easily identifiable and readily available for use in a timely fashion. If direct user access is not possible, a rapid retrieval system should be provided.

Standard 4: Staff

4 *The staff shall be of adequate size and quality to meet the library's needs for services, programs, and collection organization.*

Commentary

The college library shall need a staff composed of qualified librarians, skilled support personnel, and part-time assistants to carry out its stated objectives.

4.1 *Librarians, including the director, shall have a graduate degree from an ALA accredited program, shall be responsible for duties of a professional nature, and shall participate in library and other professional associations.*

Commentary

The librarian has acquired through education in a graduate school of library and information science an understanding of the principles and theories of selection, acquisition, organization, interpretation and administration of library resources. It should be noted, that the MLS is regarded as a terminal professional degree by ALA and ACRL. Moreover, developments in computer and information technology have had a major impact on librarianship requiring further that librarians be well informed in this developing area.

Librarians shall be assigned responsibilities which are appropriate to their education and experience and which encourage the ongoing development of professional competencies. Participation in library and other professional associations on and off campus is also necessary to further personal development.

4.2 *Librarians shall be organized as a separate academic unit such as a department or a school. They shall administer themselves in accord with ACRL "Standards for Faculty Status for College and University Librarians" and institutional policies and guidelines.*

Commentary

Librarians comprise the faculty of the library and should organize, administer, and govern themselves accordingly. The status, responsibilities, perquisites and governance of the library faculty shall be fully recognized and supported by the parent institution.

4.3 *The number of librarians required shall be determined by a formula (see Formula B) and shall further take into consideration the goals and services of the library, programs, degrees offered, institutional enrollment, size of faculty and staff, and auxiliary programs.*

Commentary

Formula B is based on enrollment, collection size, and growth of the collection. Other factors to be considered in determining staff size are services and programs, degrees offered, size of the faculty and staff, and auxiliary programs. Examples of services and programs include reference and information services, bibliographic instruction, computer-based services, collection development, and collection organization. In addition, auxiliary programs, *e.g.*, extension, community, and continuing education, as well as size and configuration of facilities and hours of service, are factors to be considered for staff size.

4.4 *The support staff and part-time assistants*

FORMULA B—

Enrollment, collection size and growth of collection determine the number of librarians required by the college and shall be computed as follows (to be calculated cumulatively):

For each 500, or fraction thereof, FTE students up to 10,000	1 librarian
For each 1,000, or fraction thereof, FTE students above 10,000	1 librarian
For each 100,000 volumes, or fraction thereof, in the collection	1 librarian
For each 5,000 volumes, or fraction thereof, added per year	1 librarian

Libraries which provide 90–100 percent of these formula requirements can, when they are supported by sufficient other staff members, consider themselves at the A level in terms of staff size; those that provide 75–89 percent of these requirements may rate themselves as B; those with 60–74 percent of requirements qualify for a C; and those with 50–59 percent of requirements warrant a D.

shall be assigned responsibilities appropriate to their qualifications, training, experience and capabilities. The support staff shall be no less than 65 % of the total library staff, not including student assistants.

Commentary

Full-time and part-time support staff carry out a wide variety of paraprofessional, technical, and clerical responsibilities. A productive working relationship between the librarians and the support staff is an essential ingredient in the successful operation of the library. In addition student assistants provide meaningful support in accomplishing many library tasks.

4.5 *Library policies and procedures concerning staff shall be in accord with institutional guidelines and sound personnel management.*

Commentary

The staff represents one of the library's most important assets in support of the instructional program of the college. Its management must be based upon sound, contemporary practices and procedures consistent with the goals and purposes of the institution, including the following:

1. Recruitment methods should be based upon a careful definition of positions to be filled and objective evaluation of credentials and qualifications.
2. Written procedures should be developed in accordance with ACRL and institutional guidelines, and followed in matters of appointment, promotion, tenure, dismissal and appeal.
3. Every staff member should be informed in writing as to the scope of his/her responsibilities.
4. Rates of pay and benefits of library staff should be equivalent to other positions on campus requiring comparable backgrounds.
5. There should be a structured program for orientation and training of new staff members, and career development should be provided for all staff.
6. Supervisory staff should be selected on the basis of job knowledge, experience and human relations skills.
7. Procedures should be maintained for periodic review of staff performance and for recognition of achievement.

For references, the following documents may be consulted: "Guidelines and Procedures for the Screening and Appointment of Academic Librarians." *C&RL News*, September 1977. pp.231-33; "Model Statement of Criteria and Procedures for Appointment, Promotion in Academic Rank, and Tenure for College and University Librarians," *C&RL News*. September and October 1973, pp.192-95, 243-47; "Statement on the Terminal Professional Degree for Academic Librarians," Chicago: ACRL, 1975.

Standard 5: Service

5 *The library shall establish and maintain a range and quality of services that will promote the academic program of the institution and encourage optimal library use.*

Commentary

The primary purpose of college library service is to promote and support the academic program of the parent institution. Services should be developed for and made available to all members of the academic community, including the handicapped and non-traditional students. The successful fulfillment of this purpose will require that librarians work closely with classroom faculty to gain from them a clear understanding of their educational

Supplementary Staffing Factors To Be Considered

Organizational and Institutional

The individual library's organization and institutional factors also influence its staffing needs. Additional factors to be considered are as follows:

Library
Services and Programs
Size and Configuration of Facilities
Hours of Service

Institutional
Degrees Offered
Size of Faculty and Staff
Auxiliary Programs

Examples of Services and Programs
Reference and Information
Bibliographic Instruction
Computer Based Services
Collection Development
Collection Organization
Archives
Audiovisual Services

Examples of Institutional Factors
Undergraduate Programs
Graduate Programs
Research
Community
Continuing Education

objectives and teaching methods and to communicate to them an understanding of the services and resources which the library can offer. While research skills and ease of access to materials will both serve to encourage library use, the primary motivation for students to use the library originates with the instructional methods used in the classroom. Thus, close cooperation between librarians and classroom instructors is essential. Such cooperation must be a planned and structured activity and requires that librarians participate in the academic planning councils of the institution. They should assist teaching faculty in appraising the actual and potential library resources available, work closely with them in developing library services to support their instructional activities, and keep them informed of library capabilities.

5.1 *The library shall provide information and instruction to the user through a variety of techniques to meet differing needs. These shall include, but not be limited to, a variety of professional reference services, and bibliographic instruction programs designed to teach users how to take full advantage of the resources available to them.*

Commentary

A fundamental responsibility of a college library is to provide instruction in the most effective and efficient use of its materials. Bibliographic instruction and orientation may be given at many levels of sophistication and may use a variety of methods and materials, including course-related instruction, separate courses (with or without credit), and group or individualized instruction.

Of equal importance is traditional reference service wherein individual users are guided by librarians in their appraisal of the range and extent of the library resources available to them for learning and research. Professional services are optimally available all hours the library is open. Use patterns should be studied to determine those times when the absence of professional assistance would be least detrimental. The third major form of information service is the delivery of information itself. Although obviously inappropriate in the case of student searches, which are purposeful segments of classroom assignments, the actual delivery of information—as distinct from guidance to it—is a reasonable library service in almost all other conceivable situations.

Many of the services suggested in this commentary can be provided or enhanced by access to computerized forms of information retrieval. In fact many information sources are available only in computerized format, and every effort should be made to provide access to them. Services may be provided in person or by other measures such as videocassette, computer slide tape, or other appropriately prepared programs.

5.2 *Library materials of all types and formats that can be used outside the library shall be circulated to qualified users under equitable policies without jeopardizing their preservation of availability to others.*

Commentary

Circulation of library materials should be determined by local conditions which will include size of the collections, the number of copies, and the extent of the user community. Every effort should be made to circulate materials of all formats that can be used outside the library without undue risk to their preservation. Circulation should be for as long a period as is reasonable without jeopardizing access to materials by other qualified users. This overall goal may prompt some institutions to establish variant or unique loan periods for different titles or classes of titles. Whatever loan policy is used, however, it should be equitably and uniformly administered to all qualified categories of users. The accessibility of materials can also be extended through provision of inexpensive means of photocopying within the laws regarding copyright.

5.2.1 *The quality of the collections shall be enhanced through the use of interlibrary loan and other cooperative agreements.*

Commentary

Local resources should be extended through reciprocal agreements for interlibrary loan according to the ALA codes. Access to materials should be by the most efficient and rapid method possible, incorporating such means as delivery services and electronic mail in addition to, or in place of, traditional forms of delivery. First consideration must always go to the primary users, but strong consideration should be given to fostering the sharing of resources.

5.2.2 *Cooperative programs, other than traditional interlibrary loan, shall be encouraged for the purpose of extending and increasing services and resources.*

Commentary

The rapid growth of information sources, the availability of a myriad of automation services, and the development of other technologies such as laser beam, videodiscs, microcomputer systems, etc., make new demands on budgets. Cooperation with other institutions, and particularly with multi-type library organizations, often becomes a necessity. It must be recognized that this does not only involve receiving but demands a willingness to give or share on the part of each library. This may mean a commitment of time, money, and personnel, but it is necessary if it is the only way to provide up-to-date services to users. Careful weighing of costs and benefits must be undertaken before such agreements are put into effect.

5.3 *The hours of access to the library shall be consistent with reasonable demand.*

Commentary

The number of hours per week that library ser-

vices should be available will vary, depending upon such factors as whether the college is in an urban or rural setting, teaching methods used, conditions in the dormitories, and whether the student body is primarily resident or commuting. In any case, library scheduling should be responsive to reasonable local need. In some institutions users may need access to study facilities and to the collections, in whole or in part, during more hours of the week than they require the personal services of librarians. However, during the normal hours of operation the users deserve competent, professional service. The high value of the library's collections, associated materials, and equipment, etc., dictates that a responsible individual be in control at all times. The public's need for access to librarians may range upward to one hundred hours per week, whereas around-the-clock access to the library's collection and/or facilities may in some cases be warranted.

5.4 *Where academic programs are offered at off-campus sites, library services shall be provided in accord with ACRL's "Guidelines for Extended Campus Library Services."*

Commentary

Special library problems exist for colleges that provide off-campus instructional programs. Students in such programs must be provided with library services in accord with ACRL's "Guidelines for Extended Campus Library Services." These guidelines suggest that such services be financed on a regular basis, that a librarian be specifically charged with the delivery of such services, that the library implications of such programs be considered before program approval, and that courses so taught encourage library use. Services should be designed to meet the different information and bibliographic needs of these users.

Standard 6: Facilities

6 *The library building shall provide secure and adequate housing for its collections, and ample well-planned space for users and staff and for the provision of services and programs.*

Commentary

Successful library service presupposes an adequate library building. Although the type of building will depend upon the character and purposes of the institution, it should in all cases be functional, providing secure facilities for accommodating the

FORMULA C—

The size of the college library building shall be calculated on the basis of a formula which takes into consideration the size of the student body, the size of the staff and its space requirements, and the number of volumes in the collections. To the result of this calculation must be added such space as may be required to house and service nonprint materials and microforms, to provide bibliographic instruction to groups, and to accommodate equipment and services associated with various forms of library technology.

a. *Space for users.* The seating requirement for the library of a college where less than fifty percent of the FTE enrollment resides on campus shall be one for each five students. That for the library of a typical residential college shall be one for each four FTE students. Each study station shall be assumed to require 25 to 35 square feet of floor space, depending upon its function.

b. *Space for books.* The space allocated for books shall be adequate to accommodate a convenient and orderly distribution of the collection according to the classification system(s) in use, and should include space for growth. Gross space requirements may be estimated according to the following formula.

	Square Feet/Volume
For the first 150,000 volumes	0.10
For the next 150,000 volumes	0.09
For the next 300,000 volumes	0.08
For holdings above 600,000 volumes	0.07

c. *Space for staff.* Space required for staff offices, service and work areas, catalogs, files, and equipment, shall be approximately one-eighth of the sum of the space needed for books and users as calculated under a) and b) above.

This formula indicates the net assignable area required by a library if it is to fulfill its mission with maximum effectiveness. "Net assignable area" is the sum of all areas (measured in square feet) on all floors of a building, assignable to, or useful for, library functions or purposes. (For an explanation of this definition see *The Measurement and Comparison of Physical Facilities for Libraries*, American Library Association, 1970.)

Libraries which provide 90 to 100% of the net assignable area called for by the formula shall be graded A in terms of space; 75–89% shall be graded B; 60–74% shall be graded C; and 50–59% shall be graded D.

library's resources, sufficient space for their administration and maintenance, and comfortable reading and study areas for users. A new library building should represent a coordinated planning effort involving the library director and staff, the college administration, and the architect, with the director responsible for the preparation of the building program.

The needs of handicapped persons should receive special attention and should be provided for in compliance with the Architectural Barriers Act of 1968 (Public Law 90-480) and the Rehabilitation Act of 1973, Section 504 (Public Law 93-516) and their amendments.

Particular consideration must be given to any present or future requirements for equipment associated with automated systems or other applications of library technology. Among these might be provision for new wiring, cabling, special climate control and maximum flexibility in the use of space. Consideration should also be given to load-bearing requirements for compact shelving and the housing of mixed formats including microforms.

6.1 *The size of the library building shall be determined by a formula (see Formula C) which takes into account the enrollment of the college, the extent and nature of its collections, and the size of its staff.*

6.2 *In designing or managing a library building, the functionality of floor plan and the use of space shall be the paramount concern.*

Commentary

The quality of a building is measured by such characteristics as the utility and comfort of its study and office areas, the design and durability of its furniture and equipment, the functional interrelationships of its service and work areas, and the ease and economy with which it can be operated and used.

6.3 *Except in certain circumstances, the college library's collections and services shall be administered within a single structure.*

Commentary

Decentralized library facilities in a college have some virtues, and they present some difficulties. Primary among their virtues is their convenience to the offices or laboratories of some members of the teaching faculty. Primary among their weaknesses is the resulting fragmentation of the unity of knowledge, the relative isolation of a branch library from most users, potential problems of staffing and security, and the cost of maintaining certain duplicative services or functions. When decentralized library facilities are being considered, these costs and benefits must be carefully compared. In general, experience has shown that decentralized library facilities may not be in the best academic or economic interest of a college.

Standard 7: Administration

Matters pertaining to college library administration are treated in the several other Standards. Matters of personnel administration, for example, are discussed under Standard 4, and fiscal administration under Standard 8. Some important aspects of library management, however, must be considered apart from the other Standards.

7 *The college library shall be administered in a manner which permits and encourages the fullest and most effective use of available library resources.*

Commentary

The function of a library administrator is to direct and coordinate the components of the library—its staff, services, collections, buildings and external relations—so that each contributes effectively and imaginatively to the mission of the library.

7.1 *The statutory or legal foundation for the library's activities shall be recognized in writing.*

Commentary

In order for the library to function effectively, there must first be an articulated understanding within the college as to the statutory or legal basis under which the library operates. This may be a college bylaw, a trustee minute, or a public law which shows the responsibility and flow of authority under which the library is empowered to act.

7.2 *The library director shall be an officer of the college and shall report to the president or the chief academic officer of the institution.*

Commentary

For the closest coordination of library activities with the instructional program, the library director should report either to the president or the chief officer in charge of the academic affairs of the institution.

7.2.1 *The responsibilities and authority of the library director and procedures for appointment shall be defined in writing.*

Commentary

There should be a document defining the responsibility and authority vested in the office of the library director. This document may also be statutorily based and should spell out, in addition to the scope and nature of the director's duties and powers, the procedures for appointment.

7.3 *There shall be a standing advisory committee comprised of students and members of the teaching faculty which shall serve as a channel of formal communication between the library and its user community.*

Commentary

This committee—of which the library director

should be an ex officio member—should be used to convey both an awareness to the library of its users' concerns, perceptions and needs, and an understanding to users of the library's objectives and capabilities. The charge to the committee should be specific and in writing.

7.4 *The library shall maintain written policies and procedures manuals covering internal library governance and operational activities.*

Commentary

Written policies and procedures manuals are required for good management, uniformity, and consistency of action. They also aid in training staff and contribute to public understanding.

7.4.1. *The library shall maintain a systematic and continuous program for evaluating its performance, for informing the community of its accomplishments, and for identifying needed improvements.*

Commentary

The library director, in conjunction with the staff, should develop a program for evaluating the library's performance. Objectives developed in accordance with the goals of the institution should play a major part in this evaluation program. Statistics should be maintained for use in reports, to demonstrate trends, and in performance evaluation. In addition, the library director and staff members should seek the assistance of its standing library advisory committee and other representatives of the community it serves.

7.5 *The library shall be administered in accord with the spirit of the ALA "Library Bill of Rights."*

Commentary

College libraries should be impervious to the pressures or efforts of any special interest groups or individuals to shape their collections and services. This principle, first postulated by the American Library Association in 1939 as the "Library Bill of Rights," (amended 1948, 1961, 1967 and 1980 by the ALA Council) should govern the administration of every college library and be given the full protection of the parent institution.

Standard 8: Budget

8 *The library director shall have the responsibility for preparing, defending, and administering the library budget in accord with agreed upon objectives.*

Commentary

The library budget is a function of program planning and defines the library's objectives in fiscal terms. The objectives formulated under Standard 1 should constitute the base upon which the library's budget is developed.

8.1 *The library's appropriation shall be six percent of the total institutional budget for educational and general purposes.*

Commentary

The degree to which the college is able to fund the library in accord with institutional objectives is reflected in the relationship of the library appropriation to the total educational and general budget of the college. It is recommended that library budgets, exclusive of capital costs and the costs of physical maintenance, not fall below six percent of the college's total educational and general expenditures if it is to sustain the range of library programs required by the institution and meet appropriate institutional objectives. This percentage should be greater if the library is attempting to overcome past deficiencies, or to meet the needs of new academic programs. The 6% figure is intended to include support for separately established professional libraries, providing the budget for those schools is incorporated into that of the University.

Factors which should be considered in formulating a library's budget requirements are the following:

1. The scope, nature and level of the college curriculum;
2. Instructional methods used, especially as they relate to independent study;
3. The adequacy of existing collections and the publishing rate in fields pertinent to the curriculum;
4. The size, or anticipated size, of the student body and teaching faculty;
5. The adequacy and availability of other library resources;
6. The range of services offered by the library, for example, the number of service points maintained, the number of hours per week that service is provided, the level of bibliographic instruction, online services, etc.;
7. The extent of automation of operations and services, with attendant costs;
8. The extent to which the library already meets the College Library Standards.

8.1.1 *The library's appropriation shall be augmented above the six percent level depending upon the extent to which it bears responsibility for acquiring, processing, and servicing audiovisual materials and microcomputer resources.*

Commentary

It is difficult for an academic library that has not traditionally been purchasing microcomputer and audiovisual materials to accommodate such purchases without some budgetary increase. The level of expenditure depends upon whether or not the institution has an audiovisual center separate from the library that acquires and maintains both audiovisual materials and hardware as well as a computer center that absorbs all costs related to microcomputer resources, even those included in the library.

8.2 *The library director shall have sole authority to apportion funds and initiate expenditures within the library budget and in accord with institutional policy.*

Commentary

Procedures for the preparation and defense of budget estimates, policies on budget approval, and regulation concerning accounting and expenditures vary from one institution to another. The library director must know and conform to local procedure. Sound practices of planning and control require that the director have sole responsibility and authority for allocation—and within college policy, the reallocation—of the library budget and the initiation of expenditures against it. Depending upon local factors, between 35% and 45% of the library's budget is normally allocated to acquisition of resources, and between 50% and 60% is expended for personnel.

8.3 *The library shall maintain internal accounts for approving its invoices for payment, monitoring its encumbrances, and evaluating the flow of its expenditures.*

Commentary

Periodic reports are necessary and provide an accurate account of the funds allocated to the library. They should be current and made accessible for fiscal accountability.

Other works cited

American Library Association, Ad Hoc Committee on the Physical Facilities of Libraries. *Measurement and Comparison of Physical Facilities for Libraries*. Chicago: ALA, 1970.

"[ACRL] Guidelines and Procedures for the Screening and Appointment of Academic Librarians." *C&RL News*, September 1977, pp. 231–33.

"[ACRL] Guidelines for Extended Campus Library Services." *C&RL News*, March 1982, pp. 86–88.

"[ACRL] Model Statement of Criteria and Procedures for Appointment, Promotion in Academic Rank, and Tenure for College and University Librarians." *C&RL News*, September and October 1973, pp. 192–95, 243–47.

"[ACRL] Standards for Faculty Status for College and University Librarians." *C&RL News*, May 1974, pp. 112-13.

"[ACRL] Statement on the Terminal Professional Degree for Academic Librarians." Chicago: ALA/ACRL, 1975.

"Library Bill of Rights" (ALA Policy Manual, Section 53.1). In the *ALA Handbook of Organization 1984/85*. Chicago: ALA, 1984, pp. 217–18.

Library Education and Personnel Utilization: A Statement of Policy. Adopted by ALA Council. Chicago: ALA/OLPR, 1970.

[RASD/IFLA] *Interlibrary Loan Codes, 1980: International Lending Principles and Guidelines, 1978*. Chicago: ALA, 1982. ■■

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Appendix I State University Invitation for Bid

INVITATION FOR BID

SYSTEMWIDE LIBRARY SPACE STUDY

August 3, 1984

IFB-LA-84-001

Office of the Chancellor
The California State University
400 Golden Shore
Long Beach, California 90802

Library Automation & Purpose of the Invitation for Bid

The libraries of The California State University have completed the conversion to machine-readable form of brief bibliographic descriptions and detailed inventory data for the bulk of the materials held in each of their respective collections. Coincidental to and affiliated with this conversion is the affixing to each item in their collections of an optical scan label.

This combination of labelled items and machine-readable master file is processed by a mini-computer system configured and maintained by the system's manufacturer, C L Systems, Inc. The processing provides the individual library with access, for user or staff enquiry, about item availability. This processing also supports related request functions in addition to tracking the current possessor of materials checked out of the library itself.

Each library is connected to a nationwide bibliographic utility (OCLC) which provides the full bibliographic descriptions of items added to its collection prospectively as well as a source of data for items already in the collection. The bibliographic utility also processes interlibrary loan transactions. Thus, since all CSU libraries are linked to the utility, it facilitates intra-system loans. Finally, one campus, CSU Chico, has successfully completed a pilot demonstration of an online public access catalog. In this demonstration, the library's data base of full bibliographic description is searchable using a variety of access points (e.g., author's name, title and subject of item) by the public using touchscreen terminals. As a result of this pilot the CSU currently has a consultant under contract to assess the products of firms capable of supplying and supporting the hardware and software system which will satisfy the libraries' detailed requirements for an online public access catalog.

Consistent with the use of computers to assist library users find and check materials out of the collection, the libraries are now reviewing their material handling and space requirements. Traditionally, the library facility is divided into three areas: public service; technical processing, and; book stack and reader stations (as shown in Figure 2). To support these areas, The California State University has used formulas relating Full Time Equivalent Students (FTES) to the number of materials to be acquired and the workload factors affiliated with preparation of those materials, their maintenance and control. These factors relate the number of staff needed to support the three library areas noted above and the size of the collection to library space requirements. The applicable formulas, as currently constituted, are also presented in Figure 2.

PHYSICAL PLANNING AND DEVELOPMENT 9000—9999

APPENDIX PPD 2

SPACE CALCULATIONS FOR LIBRARY (Form PPD 2-9)

Campus _____ Target Year* _____

Project _____ Projected FTE at Target Year _____

		Existing Permanent Space to Be Retained
Bookstack		
Projected number of bound volumes in collection at target year	_____	
Bound volume area requested (1 sq ft/10 volumes)	_____ ASF	
Special materials§ (25% of bound volume area)	_____ ASF	
Total Stack Area	_____ ASF	_____ ASF
Reader Stations		
Projected reader stations (20% of FTE†)	_____	
Standard reader stations (90% of reader stations x 25 sq ft)	_____ ASF	_____ ASF
Carrels (10% of reader stations x 35 sq ft)	_____ ASF	_____ ASF
Total Reader Station Area	_____ ASF	_____ ASF
Technical Processing and Public Services		
Projected personnel at target year	_____	
Projected area required for technical processing and public services at target year (personnel x 225 sq ft)	_____ ASF	_____ ASF
Total Area for Technical Processing and Public Services	_____ ASF	_____ ASF
Multimedia or Audio-Visual Center		
(Amount of space must be justified in Program Justification)	_____ ASF	
Total Assignable Space Required/Existing	_____ ASF	_____ ASF
Less Existing ASF per Space and Facilities Data File (SFDF)	_____ ASF	
Total New Space Required	_____ ASF	

*Target Year is occupancy year plus two years.
†Use projected FTE at target year.
§Includes unbound periodicals, maps, courses of study, State texts, pamphlets, etc.

As might be expected, with automation there has been a redeployment of personnel which has affected the use of existing library space in the Public Service and Technical Processing areas. It is anticipated that automated material handling techniques will be used in the future to accommodate portions of the book collection (stacks).

None of this has occurred, nor will occur, in a vacuum. Rather, existing library buildings have been the site of these changes. And, as might be expected, other campus functions have from time to time occupied space in the library. The amount of floor space generated by formula for each CSU library in each of the formulated areas, the space reported occupied in each library, and, the space available or deficient in each library is presented in Figure 3. As may be noted in Figure 3, there is an apparent space deficit at several CSU libraries which must be alleviated in the near future.

The Chancellor's Office, Division of Library Affairs of The California State University is committed to plan to alleviate this situation and enhance, simultaneously, each library's ability to achieve its mission. Division staff believe this can be accomplished through local storage of library materials using automated access facilities. These facilities are envisioned as areas in which open access to library materials is not a major requirement thus selected materials are held in high density storage and accessed through the use of automated retrieval devices.

For example, the three problem areas enumerated earlier each points to a requirement for zero growth, first, and as soon as possible, of the open stack (user accessible) collection, and; then, for the total collection. While alternatives exist, and a review of them is requested by this IFB, the most viable solution is a facility capable of accommodating materials which, while 'stored' either in the library collection or the facility, are required for use on short notice. To enable zero open stack collection growth, this facility will also absorb, at a minimum, the number of items added to the open stack collection for a minimum of ten years. And, after ten years, statistics concerning the use of items in the facility will permit unused materials to be purged, thus implementing zero total collection growth.

Based on these criteria such a facility would be designed and implemented to accommodate more items than held in the current open stack collections at each of the CSU libraries. The development of this capacity is shown in Figure 4.

THE CALIFORNIA STATE UNIVERSITY
LIBRARY ASSIGNABLE SQUARE FOOTAGE (ASF) NEEDS, 1983-84

Campus	1 Countable Holdings 6/30/82	2 Collection ASF Space Standard (Need)	3 FTE 1983-84 Allocated	4 Reader Station ASF Space Standard (Need)	5 Existing* Collection and Reader Station ASF	6 ASF Deficit of Collection and Reader Station Need Col. 2 + 4 - 5	7 Proposed Staff Positions 1983/84	8 Staff and Technical Services ASF Space Standard (Need)	9 Existing* Staff and Technical Services ASF	10 ASF Deficit of Staff and Technical Services Space Col. 8-9	11 Total ASF Space Needs Col. 2 + 4 + 8	12 Total* ASF Space Existing	13 Total ASF Deficit Col. 11-12	14 Percent of ASF Deficit $\frac{\text{Col. 13}}{\text{Col. 11}} \times 100$
Bakersfield	228,348	28,544	2,428	12,584	28,181	13,027	27.2	6,120	6,782	-662	47,248	37,883	9,365	19.82
Chico	574,717	71,840	12,500	65,000	138,498	342	83.9	18,875	27,837	-8,962	155,515	164,135	-8,620	-5 54
Dominguez Hills	272,908	34,121	6,800	30,160	42,166	22,115	48.1	10,823	9,609	1,214	75,104	51,776	23,328	31.06
Fresno	648,258	80,781	13,500	70,200	118,438	40,543	98.7	28,408	37,889	-17,481	171,389	148,327	23,062	13 46
Fullerton	539,538	67,442	19,600	81,120	81,089	67,473	105.4	23,715	27,842	-3,927	172,277	118,731	53,546	31 08
Hayward	642,631	80,329	8,660	45,032	90,564	34,797	66.4	14,715	36,976	-22,261	140,076	127,540	12,536	8 95
Humboldt	291,609	36,451	8,580	34,218	85,499	-14,832	60.4	11,348	17,439	-6,091	82,007	102,938	-20,931	-25 52
Long Beach	788,894	98,653	22,000	114,400	170,921	43,342	145.7	32,783	31,147	1,636	247,048	203,892	43,054	17 43
Los Angeles	790,583	98,823	13,803	71,769	169,013	1,578	104.8	23,400	53,602	-30,202	265,743	222,815	43,123	16 23
Northridge	783,452	97,932	19,100	99,320	151,684	45,568	128.2	28,845	32,382	-3,457	226,097	183,985	42,111	18.63
Pomona	426,123	53,265	13,000	67,600	60,327	60,538	87.1	19,598	27,439	-7,841	140,463	87,766	52,697	37.52
Sacramento	727,172	90,897	16,900	87,880	80,642	98,135	114.8	25,850	67,975	-42,125	204,427	148,817	55,610	27.20
San Bernardino	348,248	43,531	3,250	20,020	68,655	-3,104	34.7	7,808	14,582	-6,774	71,359	81,237	-9,878	-13 84
San Diego	819,211	102,401	24,000	127,920	142,534	87,787	161.9	36,428	35,682	748	266,749	178,216	88,533	33 19
San Francisco	820,099	77,512	17,700	92,040	143,122	26,430	123.4	27,765	37,260	-9,495	197,317	180,372	16,945	8 59
San Jose**	735,728	91,955	18,000	93,600	188,944	-3,379	118.6	26,685	29,824	-139	212,260	216,768	-3,518	-1 66
San Luis Obispo	545,132	68,142	14,200	73,840	138,663	11,319	92.4	20,790	28,878	-8,088	162,772	159,541	3,231	1 98
Sonoma	337,210	42,151	4,400	22,880	55,757	9,274	38.1	8,573	17,085	-8,512	73,604	72,812	762	1 04
Stanislaus	224,794	28,099	3,220	16,744	22,988	21,855	31.0	6,975	8,969	106	51,818	28,518	23,300	44.97
Systemwide	10,352,699	1,294,089	235,830	1,226,316	1,967,605	552,800	1,049.3	371,090	$40,609	-175,513	2,953,261	2,514,799	448,462	15 13

*Existing ASF does not include space in old houses or temporary buildings. The only temporary space excluded is 1339 ASF in temporary buildings 111 and 112 at Stanislaus.

**Existing ASF excludes space which will be vacated in old library.

NOTE: Column 2. Holdings divided by 10 sq. ft. (3) plus 25% for special materials.

Column 4. 80% x 120% of FTE x 25 sq. ft. per reader station) + 10% x (20% of FTE x 35 sq. ft. per reader station for carrels).

Column 8. Staff positions x 225 assignable square feet.

PPD 7/5

FIGURE 3

FIGURE 4

COLLECTION COMPONENTS TO BE LOADED INTO AN AUTOMATED ACCESS FACILITY AND THEIR CONTRIBUTION TO ITS SIZE

INITIAL LOAD	40% of collection (the median of on-campus out of main library storage now extant)
	25% of collection (special collections)
TIME PHASED (10 years)	40% of collection (transfer over a ten year period based on an average collection growth factor of 4% per year)
Require Total Capacity	105%

Appendix J John Kountz on "Robots in the Library"

A possible end to library growth woes

Robots in the Library: Automated Storage and Retrieval Systems

By John Kountz

INCREDIBLE ADVANCES in the application of electronic data processing to library operations have occurred over the past 20 years. Manual paper files have been reduced dramatically. Similarly, responses to patron inquiry are characterized by significant improvements in accuracy and speed. The physical library's "last mile" problem seems to be the requirement that library facilities be enlarged periodically to hold ever-growing collections. Not that libraries haven't confronted the problem; they have. In fact, like the dabbling in automation libraries pursued from 1930 through 1960, the approach to material storage presented here was sampled by a select few libraries in a primitive form in the early and mid-1970s (see Ellsworth, bibliography).

However, there is a vast difference between sampling a technology and applying it with the vigor that profit margins spur in private industry. For example, the industrial community simply couldn't afford to operate manual warehous Their solution is called mat ndling. The material handling ques that have been successfully mented in the industrial environment over the last decade can be applied to library materials with equal effectiveness.

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Library storage

Libraries buy, prepare for general use, and store information which, in itself, is in a diversity of physical formats. Dominant among the physical formats of information has been (and continues to be) the printed book. It follows, then, that the primary storage component of all libraries is designed to accommodate books. In the United States, most library storage has a secondary functional requirement: that of displaying stored materials in a logical sequence for the library's public.

To support these two functions, book storage in U.S. libraries has been accomplished through ranges of open shelves. On these shelves the books are arranged vertically, in single file with their spines toward the aisle to permit identification. To facilitate browsing, the books are arranged in a sequence based on subject content (typically Dewey or Library of Congress call numbers) to bring together all of the books on a given subject.

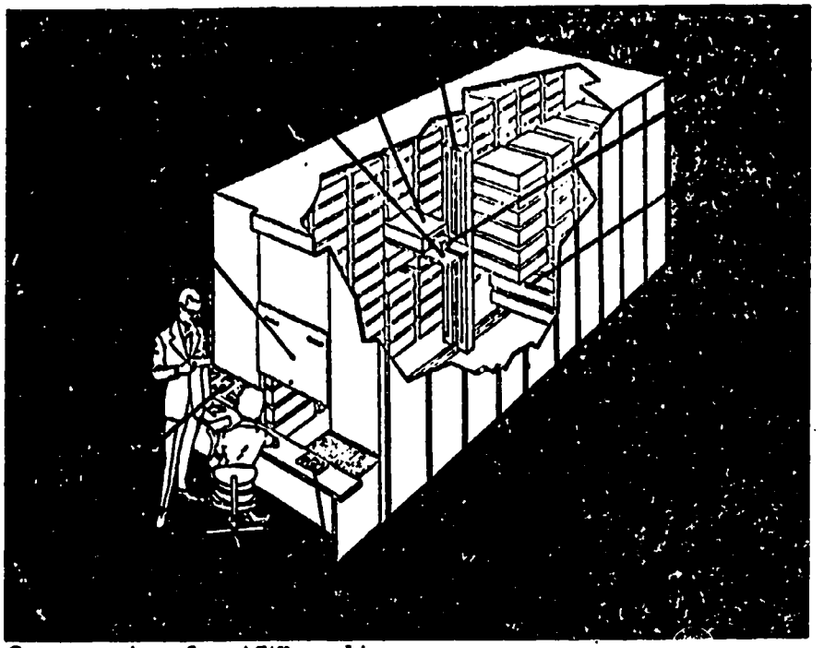
This, for most libraries generally, is the level to which library material storage techniques have evolved (cardboard boxes in the back room notwithstanding). Even with the inefficiencies of open-shelf storage, those alternatives, which have emerged and been popularly received by libraries, are based on reducing the width of aisles between the shelves or increasing the height of the shelving.

Library service in the United States has been vested in open stacks since libraries turned from the "write it on a slip of paper and we'll try to find it" of Henry Labrouste to the "go find it yourself" of Angus Snead MacDonald. In the minds of many, the open stack is the only stack. For recent, high-demand materials, they are right! A retriever system does not preempt the open stack. Rather it complements the open stack and actually will improve the user's chances of finding items. This is achieved by retiring little used materials into the retriever and, in so doing, reducing the number of dead and dying items that must be winno /ed to satisfy a search. In fact, because of computer control, the use of items retired to the retriever is fully documented. As a result, periodic candidates for weeding lists can be prepared by those automated storage and retrieval (AS/R) units for items not used within a period of time designated by the library.

Industrial material storage

Industrial storage techniques have undergone a major revolution over the past ten years. Electromechanical pallet and bin handling robots have been teamed with computers to make the manual warehouse obsolete. Nor are the users of these machines and systems limited to *Fortune* 500 companies.

The machines and shelving techniques that are used in industry are deceptively elegant (Figure 1). Items to be stored are placed in bins and the bins are placed in an industrial rack assembly. A computer-controlled robot moves into and out of the rack assembly to remove and replace the bins. Each stored item is assigned to



Cut-away view of an AS/R machine

a bin and each bin is assigned to a location. On request for an item the computer communicates the bin location to the robot. The robot retrieves the bin, and carries it to a work station where an operator, guided by a video display, takes the item from the bin and gives it to the requester. Elapsed time for this operation is typically little more than one minute. Returning the item to storage, as would be required in libraries, follows essentially the reverse of this procedure and takes about the same amount of time.

Benefits of AS/R

The AS/R approach to the retrievable storage of books offers a number of attractive operational efficiencies for libraries. In addition, the miniload version of automated storage and retrieval systems can also make significant contributions to library service, be it public or academic. Most significant, though, is the economic benefit of AS/R techniques applied to libraries both in initial cost and the cost of operation.

In the area of operating efficiency, for example, because computer control is used, items in high demand are sensed by the system and, under software control, are moved to the front of the rack assembly as they are used and returned to the unit. This capability reduces retrieval time for high-use materials, while little used items, through this same software, gravitate to the rear of the unit. Items need not be shelved by Dewey or LC, rather they could be stored in random format, perhaps by size. In any event, the library can designate its storage scheme and the system will process the materials accordingly. For special interest groups or individual classes, books pertaining to a specific subject or representing a particular point of view could be requested in advance of their use and the AS/R would prepare a "kit" comprised of those items. The accuracy and speed with which specific materials can be requested and received is the basis for this level of support.

Connected to a second computer system, such as an automated public access catalog (PAC) or circulation control, a library user could designate a selection of titles on a subject using a computer terminal with confidence that items not checked out or in the open stacks will be made available within minutes.

This mode of operation contrasts vividly with current practice, wherein the library user must go to the stacks and "find" the item(s)—stacks, it must be added, which have been ravaged by others as they hunt their own materials, and which may or may not have been set straight through shelf reading before each user attack. The ability of the user to request specific titles with confidence in their timely availability is an inestimable service enhancement to any library.

Conservation considerations

The area in which the storage/retrieval machine works and in which the materials are stored is closed to staff and public alike. As a result, maintenance usually required for public areas is not necessary. From a preservation viewpoint, extensive lighting is not required, and once suitable temperature/humidity levels have been achieved, they are easily and economically maintained. These factors yield a facility that is inexpensive to operate and maintain while contributing to the preservation of rare materials. And, with regard to reliability, manufacturers and industrial users alike maintain that over 98 percent uptime is typical for miniload AS/R systems (as would be used by libraries). Finally, although people aren't usually allowed inside, periodic, scheduled preventive maintenance is the key to reliability.

Operational benefits aside, the real zinger, for libraries, is the cost and capacity of an AS/R system when compared to the equivalent cost and capacity of a typical library building. As a function of the capacity of an AS/R system and the planned and coordinated loading of materials into it, densities approaching 200 books per square foot are possible. Thus, properly designed, the system could absorb a significant portion of the typical library's existing collection, plus materials added over a ten-year period, in an extremely small area (e.g., 600,000 books in less than 4000 square feet). The result is a viable approach to zero open-stack collection growth.

And, since the AS/R system maintains exact statistics on the use of each item stored in the system, a list of unused materials can be requested from the system to guide deselection. The result is the ability to cap future library requirements for ever larger facilities. Finally, comparative operating costs for each of the typical library storage techniques and AS/R units are presented in Table 1. How is it possible to store for less and have the materials available in about one minute? Quite simply, depending on what is stored, AS/R units are 35 feet or more high, and support storage densities 19 or more times those traditionally achieved using open stacks (wherein height is constrained by human reach), and six times the density of moving aisle approaches (which are also limited by human reach).

Clearly this density of storage coupled with the delivery of requested materials in about one minute compares favorably to the common library user's experience of going into the library stacks and not finding the material at all.

How it looks

If any of the foregoing has captured your imagination, let's turn to

"What (will) these things look like?" and, "How big are they?" All in all, four basic components comprise the physical system (Figure 1): 1) the robot and floor pad with rails; 2) the industrial rack assembly and bins; 3) the workstation; and 4) computer controls.

The workstation need not be located at the same floor level as the rail on which the robot travels. Bins can be delivered to a workstation situated at any point within the robot's vertical travel limits. Bins need not be delivered directly to a workstation at the end of each aisle. Rather, conveyers of one type or another can receive the retrieved bin and transport it to a workstation at some distance from the storage facility. However, not only are remote workstations more expensive to build initially, the increased complexity of "remote" bin delivery could be a source of lower system reliability, higher maintenance costs, and an increase in the overall time from request to delivery for bins retrieved from the rack assemblies. Remembering that multiple delivery points were a contributing factor to the downfall of the pioneer Randtrievers (see Ellsworth) installed in libraries, history need not repeat itself.

Factors influencing size

There are two major factors peculiar to libraries that affect the size of the facility: 1) what will be stored and 2) how often will it be used.

What is to be stored is strictly a local decision. However, once established, the physical size of the materials to be stored must be determined in terms of how many items there are of a given height.

Since you can anticipate storing books, there are students of this sort of thing such as Freemont Rider and Keyes Metcalf to draw on. Thus, it has been asserted that about 95 percent of the books in a typical library collection are nine inches or less from fore-edge to spine. Similarly, books have an average width of 1.4 inches and 90 percent of them are 11 inches high. Also, it has been documented that about 85 percent of typical bound periodicals are 12.75 inches high or less and average 1.8 inches in width. Needless to say, the dimensions are known or can be readily obtained for boxed reels of microfilm, microfiche, micro-opaques, and the realia/exotica from the collection you anticipate storing.

By using statistics from the literature, or actually measuring the materials in the collection of the target library, it is possible to begin calculating the number of bins required. The bins themselves, of course, can be as plain pipe rackish or custom sculpted as you may conceive.

In any event, be prepared for interesting design sessions, and beware of the backyard tinker. Agree with the concept that an articulated capsule incorporating silica gel packets and resembling four feet of traditional solid oak library shelving would be A-OK. Then ask the advocate how long it would take to deliver 20,000 of them for under $70 each. Throughout such interludes, don't lose sight of the fact that while there are standard sizes based on the dimensions of the bin extractor mechanism, the bins you get will probably be fabricated for your installation and can be built to match the requirements of the materials in your library's collection.

The second factor, how often will it be used, leads to the peak retrieval rate you expect for materials in the retriever. This is a number reflecting the items per hour that the system must be able to handle. Since there are no hard-and-fast rules at this time, it is suggested that a review be made of in-house use and circulation statistics.

The peak retrieval rate, in this instance, means the largest number of items to be withdrawn from the stacks in a given time (e.g., 15 minutes), regardless of why, during the most active period of library use. While certainly not a rule of thumb, analyzing collection use statistics from two large academic libraries (collections over 650,000 volumes each) has provided some initial guidelines to the components of peak use.

For example, from this analysis a relationship was identified between recorded circulation and in-house use (the later requiring staff reshelving). It appears that 2.35 books are taken from the shelf and replaced by the user for every book circulated and/or taken from the shelf and left for staff to reshelve.

Counting costs

As with all good things, a price does apply. By this time, I'm sure you have deduced (correctly) that the AS/R system is just a machine that may be connected to another system and requires housing. As a result, cost follows the level of sophistication required of the retrieval system and the housing. There are areas of cost that can only be identified here, since the dollar amount they represent is a reflection of local requirements, local labor and material rates, and the value of the dollar at the time decisions are made. The areas for which you alone can determine local costs are:

1. Architect and engineer fees for site survey, preliminary planning, final drawings, specifications, and the like.

2. Software development, if required, to connect the system to an existing computerized library system such as circulation control or public access catalog. Retriever systems can be as dumb as an operator-driven keyboard or as smart as computers can make them; there are hundreds of thousands of dollars separating the two extremes. Know what you want and can afford before you jump in with both feet.

3. Construction costs are in direct proportion to the aesthetics of the structure. If you are attempting to preserve architectural symmetry, it could be expensive. If the existing building is on a view point or other geologic feature, engineering costs may exceed the price of the retriever system alone.

Type	Sq. ft.	AC/ Lights	Janitor	Reshelve Oper.	Power	Prev. Maint.	Total	Unit Cost
Library stacks	60,000	63,000	81,420	24,000	0	0	168,420	0.281
Industrial shelving	40,000	42,000	54,280	24,000	0	0	120,280	0.200
Compact (motorized)	20,000	10,500	13,570	24,000	2,700	3,000	53,770	0.090
AS/RS (motorized)	3,750	863	1,115	27,170	7,642	4,000	40,790	0.068

On the other hand, if you have surveyed your storage needs carefully, the numbers you will have prepared can be used by any of the several companies selling miniload AS/R systems to provide a reasonably accurate cost estimate. Each firm has its algorithm. For those of you who can't wait and want a ball park insight into the cost of a system right now (without reference to architects, software development, or construction) you can multiply: the total number of bins under 12" high by $60; the number of bins 12" high or higher by $78; the number of aisles by $110,000; and the total number of feet of aisle by $125. Add up the products and the result is a nominal estimate for the rack assembly, bins (all sizes), robot, tracks and rails, and local "end of aisle" control (as of 1985). Ah, ah, ah, this is just a ballpark figure! Don't reach for the checkbook without consulting the companies for exact prices.

Operating and maintenance costs depend on how many retriever columns your system has, the volume of retrievals performed, and local wage scales. It also depends on the air conditioning you need locally. In addition, if, for example, there are five or more columns in your system, a full-time maintenance person may be required. Your supplier, however, and the experience of local industrial users will be your best source of information for maintenance costs although their experience will be with systems in constant use (typically, 24 hours per day). In any event, don't overlook contracting for maintenance if you are not into empire building (and expenditures for benefits, etc.).

Start-up costs will include loading the system which, depending on the library, may entail labeling and measuring each item, then physically moving the materials into the system. And, since the system will be new, there will be the sprinkling of minor problems and the catastrophic interludes we've all been through. For these moments of excitement, no dollar amount can be assigned.

And that's that! Automation in libraries has addressed paperwork and has been successful. Automation and robotics have been deemed successful in industry for over a decade. The techniques and systems stemming from automated warehousing are fully applicable to libraries. The need, peculiar to libraries, for ever-expanding facilities may trigger a revolution in library buildings and open the way toward vastly improved library service for generations to come.

Bibliography

AS/RS in the Automated Factory. Material Handling Institute, 1983. More brochure than book, this item provides a quick review of benefits, as one would expect from a trade association.

Back, Edward D. *A Layman's Guide to Control Systems Design*. SPS Technologies, 1983. The control systems addressed here, naturally, are for the automated factory, but could be applied to the way things need to be done in a library. Of interest is the categorization of functions performed in terms of their degree of mechanization (the "first degree" being manual with the "fifth degree," full automatic). A volume worth scanning to pique your imagination.

Case Studies, Featuring Practical Applications of Automated Storage/Retrieval Systems. Material Handling Institution, 1980. Focusing on industrial applications with an emphasis on photos of installed systems. Note the section on automated small parts system where an operator's station and console are shown. At $5, as Abbie Hoffman once said, "Steal this book."

Considerations . . ., for Planning an Automated Storage/Retrieval System. Material Handling Institute, 1982. Another brochure covering in line drawing format the variety of retriever configurations, conveyors, tracks, and structures that an AS/R machine might take. Includes an explanation of the steps taken in a retrieval cycle and a glossary. At $7.50, steal this one, too.

Ellsworth, Ralph E. *The Economics of Book Storage in College and University Libraries*. Scarecrow, 1969. A remarkable source of information about the Randtriever (with pictures). Fortunately, this book was published before the blush of novelty had faded from the Randtriever and, as a result, there are pictures of the smiling pioneers of this technology. Also included are brief descriptions and pictures of some of the more exotic devices designed to increase the number of books per square foot. Dated.

Metcalf, Keyes D. *Planning Academic and Research Libraries*. McGraw, 1965. Of particular note, from a historic viewpoint, is the chapter on "Housing the Collection" as it identifies the seminal researchers and number gatherers in the field of book sizes. This chapter also reviews the state-of-the-art in compact shelving and related techniques for increasing the number of items per square foot. More dated than Tompkins & Smith.

Material Handling Engineer (periodical). Similar to the above but more subdued and technical. Suggested only for those who want to get down on the subject (after digesting the Tompkins & Smith compendium).

Modern Material Handling (periodical). An excellent source of practical "how it was done" articles. While a manufacturers showcase for new material handling devices, this monthly also provides a good, current source of supplier information. If you wish to pursue the subject of AS/R systems in libraries and like to talk to sales representatives, est! est! est!

Rider, Freemont. *Compact Book Storage*. Hadham Pr., 1949. *The* work on book sizes. All others are ergotuers.

Slote, Stanley J. *Weeding Library Collections*. Libraries Unlimited, 1975. The focus is on public libraries, but the assessment of the impact of the unweeded collection on the provision of library service is universal.

Toffler, Alan. "Libraries," in *Reader in the Academic Library*. NCR Microcard Editions, 1970, p. 285-298. Reveals the philosophy of the open-stack library in readable terms.

Tompkins, James A. & Jerry D. Smith, eds. *Automated Material Handling and Storage*. Auerbach, nd. This compendium of articles by experts in the industrial field is the bible for material handling. Contents include almost anything you would care to know about the automated factory. Unfortunately it is expensive and dated. However, it provides encyclopedic coverage and, when coupled with the trade magazines in this field, will enable you to hold your own with sales reps and administrators alike. The dated material relates to the listings of suppliers, consultants, and related firms.

Unpublished collection use surveys conducted at California State University, Northridge and California State University, Long Beach, 1983.

AS/R System suppliers (who know the word library)

Eaton—Kenway
515 E. 100 S.
Salt Lake City, UT 84102
801-530-4000

SPS Technologies
Township Line Rd.
Hatfield, PA 19440
215-721-2100

Litton Unit Handling Systems
7750 Dagget St.
San Diego, CA
619-268-9995

A library consultant (who knows the words AS/R System)

HBW Associates
14724 Overview
Dallas, TX 75240

Appendix K Cost Data on Library Storage

Note: The first four pages describe the Southern Regional Library Facility of the University of California, located on the UCLA campus. They include cost figures for Phase Two of its construction.

The last two pages are from the State University's June 1990 report, *Justification and Cost Impact of the New Library Policies and Standards*, which is reproduced in its entirety in Appendix A above. They estimate capital and operating costs for open stacks, on-site high-density shelving, and industrial shelving.

IV. PROJECT DESCRIPTION

The SRLF is a compact shelving facility designed to house low-use library materials including books, microforms, films, audiovisuals, manuscripts, and other collection materials from UC libraries in the southern region consisting of the Irvine, Los Angeles, Riverside, San Diego, and Santa Barbara campuses. The SRLF, as planned, will be constructed in three phases for a total capacity of approximately 11 million volumes. Phase 1 of the SRLF provides capacity for approximately 3.6 million volumes or the equivalent and support staff space. Phase 2 is planned to provide space for approximately 3.6 million volumes and is scheduled to be completed in 1994.

The existing SRLF building is located on the Los Angeles campus at the corner of Veteran and Gayley Avenues. The current operations of the SRLF include:

- o accepting and processing deposits from libraries,
- o storage of deposited materials in environmentally safe conditions,
- o retrieval and delivery of materials requested for use by the depositing campus (within 48 hours),
- o retrieval of material for on-site users.

Phase 2 of the SRLF will be located west of the existing SRLF building (see Figure A) and will be built on a footprint of approximately 32,000 gross square feet (gsf). The facility will be designed as a single-story structure with compact shelving (in three internal tiers with three multiple decks or catwalks), to provide greater storage density than normal library shelving. Phase 2 is planned to provide approximately 96,000 gsf of space, with a total usable area of about 87,600 asf.

The structure will be designed to integrate with the existing Phase 1 of the SRLF allowing the staff area already constructed in Phase 1 to support Phase 2. No additional staff or public user areas are proposed for inclusion in Phase 2. In order to ensure the continuity of the operations, building components will be matched and integrated with Phase 1. The Phase 2 facility will duplicate the existing Phase 1 structural and shelving systems including special shelving areas for microform and oversized documents. The central service and utility corridor, or "spine", must be expanded to accommodate Phase 2. This will necessitate storage rooms and one additional elevator.

As with Phase 1, Phase 2 must be planned and constructed to minimize disruption (dust, traffic and noise) in the neighborhood. Phase 2 must also be constructed to minimize disruption to ongoing work in Phase 1.

The heating, ventilation and air conditioning (HVAC) systems, the energy management system (EMS), the security system, and the fire protection system, must all interface with existing Phase 1 systems and the appropriate protection systems on campus. As in Phase 1, an environment with proper temperature, humidity and filtration control is required to protect the various materials from deterioration. Atmospheric pollutants must also be filtered out of incoming and recirculating air.

The value of the materials stored in the SRLF also mandates sophisticated and flexible security controls, integrated with Phase 1. The ground floor of SRLF Phase 2 will be expected to support multiple tiers of library materials housed in compact shelving, and must be sized to handle heavy static loads. Loading requirements will be carefully calculated with plans for above normal loads throughout. As in Phase 1, loading requirements must be calculated to account for the weight of special storage cabinets for microforms and maps. In order to reduce pollutants which could be caused by concrete dust, and to provide for longer wear, the floors must be well sealed and coated or otherwise covered.

In accordance with the University of California Guidelines for Implementation of the California Environmental Quality Act, an Environmental Impact Report for all three phases of the Southern Regional Library Facility was completed in July, 1981. This document is on file with the University of California Office of the President, with copies available upon request.

Because of the site and because of the active concern of the homeowners association, the structure will be designed to present as little visual mass as possible (consistent with Phase 1).

APITAL IMPROVEMENT BUDGET • ANALYTICAL DATA

UNIVERSITY of CALIFORNIA
Los Angeles
Campus

Project Title	Campus Reference	Asset No.	Cost Indexes
outhern Regional Library Facility, Phase 2	940792		ENR: 4628 EPI : 2145

ANALYTICAL DATA

		Column (1)	(2)	(3)	(4) Total All Sources
Areas	ASF per PPG 9/89	ASF	ASF	ASF	87,600 ASF
	ASF Current	ASF	ASF	ASF	ASF
	OGSF	OGSF	OGSF	OGSF	96,000 OGSF
	Ratio (ASF Current ÷ OGSF)	0. to 1.00	0. to 1.00	0. to 1.00	0.91 to 1.00
Unit Costs	Construction Cost per ASF	$ /ASF	$ /ASF	$ /ASF	$ 124.98 /ASF
	Construction Cost per OGSF	$ /OGSF	$ /OGSF	$ /OGSF	$ 114.04 /OGSF
	Total P-W-C Cost per ASF	$ /ASF	$ /ASF	$ /ASF	$ 157.26 /ASF
	Total P-W-C Cost per OGSF	$ /OGSF	$ /OGSF	$ /OGSF	$ 143.50 /OGSF
	Gr. 2&3 Equip. Cost per ASF	$ /ASF	$ /ASF	$ /ASF	$ 5.70 /ASF

CONSTRUCTION COST ANALYSIS

	Costs	Unit Costs $/ASF	Unit Costs $/OGSF	%	Remarks
• Concrete & Structure	$				
• Closing - in					
• Finishing					
• Group 1 Equipment					
a. SUBTOTAL - Gen. Constr.	$	$	$		
b. HVAC					
c. Plumbing					
d. Electrical					
e. Elevators					
f. Other					◊ Identify:
TOTAL BUILDING COST ONLY	$	$	$	100.0	
g. Additional Bldg. Costs					◊ Identify:
TOTAL BUILDING + ADDITIONAL COSTS	$	$	$		
h. Other Construction		◊ Identify:			
i. Other Construction		◊ Identify:			
TOTAL CONSTRUCTION COST	$	◊ Same as Schedule C, Item 1 (line 24), Page 1			

NOTES: (1) Sub 8 includes:

Value Engineering:	$55k
Community Environmental Assessment Mtgs.:	$16k
OSH Fees:	$ 8k
Travel Allowance:	$ 2k
Utility Shut-downs:	$10k
Total	$91,000

Budget No.	CONCEPT
Issue Date	8/23/89
Revised	9/19/89
Revised	9/28/89
Revised	10/17/89
Revised	

d by: Julie Davis

.I.& Analytical Data 8-70

CAPITAL IMPROVEMENT BUDGET • BUDGET DATA

UNIVERSITY of CALIFORNIA
Los Angeles
Campus

Project Title	Campus Reference	Asset No.	
Southern Regional Library Facility, Phase 2	940792		ENR: 4828 EPI : 2145

Cost Indexes

A FUNDING SCHEDULE Per 19 · 19 C.I.P., dated , Univ. Priority No.

Totals	Prefunded	19 90 · 19 91	19 91 · 19 92	19 92 19 93	19 · 19
$ P 413		P 413			
W 482			W 482		
C 12,881				C 12,881	
E 499				E 499	
$ 14,275 (Tot. Proj.)		413	482	13,380	

B FUNDING REFERENCES

	Column (1)	(2)	(3)	(4) Total All Sources
Account No.				
Source				

C COSTS

					%
0.	Site Clearance	$	$	$	$ 70,000	0.5
1.	Construction				10,948,000	79.5
2.	Exterior Utilities				105,000	0.8
4.	Site Development				475,000	3.4
5.	Fees				785,000	5.7
6.	A&E/PP&C				557,000	4.0
7.	Surveys, Tests, Plans, Specifications				145,000	1.1
8.	Special Items				(1) 91,000	0.7
	SUBTOTAL	$	$	$	$ 13,176,000	95.6
9.	Contingency 5.2%				600,000	4.4
	TOTAL P.W.C	$	$	$	$ 13,776,000	100.0
3.	Group 2&3 Equipment				499,000	
	TOTAL PROJECT	$	$	$	$ 14,275,000	
	Available Funding				14,275,000	
	Anticipated Surplus (Deficit)	$	$	$	$	

D FINANCING

	$		$ 14,275,000
		TOTAL	$ 14,275,000

E STATUS OF PROJECT: PPG Concept

Campus
Name: John Seidel
Title: Sr. Unit Manager
Prepared by: Julie Davis
Signature: John E. Silcard
Title: Dir., Project Management
Approved for Campus, Date:

AVP-PPC
Program:
Fiscal:
Cost:
Signature:
Title:
Approved for AVP-PPC, Date:

Budget No.	CONCEPT
Issue Date	8/23/89
Revised	9/19/89
Revised	9/28/89
Revised	10/17/89
Revised	

B. Comparison of Costs by Type

The following tables display the capital cost implications of various storage and shelving techniques. Traditional Open Stack Shelving is based upon 10 volumes to the ASF. On-site High Density Shelving is based upon the nominal 35 volumes to the ASF. In most cases one can see that slight benefits are realized in the use of space as the shelving area increases in size, included are construction and shelving costs.

For "Open Stack" collections the cost per volume is constant at $11.00 per volume regardless of the number of volumes.

Storage Type	100,000 Vols.	300,000 Vols.	700,000 Vols.
OPEN STACK SHELVING			
Square Feet	10,000	30,000	70,000
Volumes Per Square Foot	10	10	10
Cost Per Square Foot	$110	$110	$110
Cost	$1,100,000	$3,300,000	$7,700,000
Cost Per Volume	$11.00	$11.00	$11.00

For On-site High Density Shelving (Motorized) there is a significant drop in cost per volume as compared above to the "open stack" method.

ON-SITE HIGH DENSITY (MOTORIZED)			
Square Feet	2,632	8,333	20,000
Volumes Per Square Foot	38	36	35
Cost Per Square Foot	$115	$115	$115
Cost	$302,632	$958,333	$2,300,000
Cost Per Volume	$3.03	$$3.19	$3.29

Industrial Shelving is the principal type associated with Remote Library Facilities such as the types used by the University of California. The high density is achieved by shelving materials two and three rows deep on each shelf. This approach increases staffing cost because of the increased need to provide personal service in this type of facility plus the need to operate two facilities. The cost per volume associated with Remote Library facilities decreases with the number of volumes stored.

INDUSTRIAL SHELVING			
Square Feet	3,704	9,677	19,444
Volumes Per Square Foot	27	31	36
Cost Per Square Foot	$100	$100	$100
Cost	$370,370	$967,742	$1,944,444
Cost per Volume	$3.70	$3.23	$2.78

C. Operational Cost Impacts

The table below is drawn from an article, "Robots in the Library: Automated Storage and Retrieval Systems" by Mr. John Kountz, published in the Library Journal of December, 1987. The table displays annual operations costs with the type of shelving or storage discussed above.

The costs listed in the following table do not include transportation of library materials to and from a remote facility or telecommunications to identify, locate and request materials or initial set up of separate records, or additional land value costs that must be added to the cost of a remote site.

The table points out critical information about operating costs associated with the various types of shelving facilities. All academic libraries must pay the same "open stack" operating costs of approximately $.28 per book. The CSU on-site high density cost is $.09 per book. This is more cost effective than Industrial Shelving, used in Remote Storage facilities, which is approximately $.20 per book.

Estimated Annual Cost
to Store 600,000 Books in a Retrievable Manner

Type	Sq. Ft.	A/C/ Lights	Janitor	Reshelve Operator	Power	Prev. Maint.	Book Unit Cost
Open Stacks	60,000	63,000	81,420	24,000	0	0	.281
On-site High Density	20,000	10,500	13,570	24,000	2,700	3,000	.090
Industrial Shelving	40,000	42,000	54,280	24,000	0	0	.200

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

THE California Postsecondary Education Commission is a citizen board established in 1974 by the Legislature and Governor to coordinate the efforts of California's colleges and universities and to provide independent, non-partisan policy analysis and recommendations to the Governor and Legislature.

Members of the Commission

The Commission consists of 15 members. Nine represent the general public, with three each appointed for six-year terms by the Governor, the Senate Rules Committee, and the Speaker of the Assembly. The other six represent the major segments of postsecondary education in California.

As of March 1991, the Commissioners representing the general public are:

Mim Andelson, Los Angeles;
C. Thomas Dean, Long Beach;
Henry Der, San Francisco; *Vice Chair;*
Rosalind K. Goddard, Los Angeles;
Helen Z. Hansen, Long Beach;
Mari-Luci Jaramillo, Emeryville;
Lowell J. Paige, El Macero; *C.*
Dale F. Shimasaki, Sacramento
Stephen P. Teale, M.D., Modesto.

Representatives of the segments are:

Joseph D. Carrabino, Orange; appointed by the California State Board of Education;

James B. Jamieson, San Luis Obispo; appointed by the Governor from nominees proposed by California's independent colleges and universities

Meredith J. Khachigian, San Clemente; appointed by the Regents of the University of California;

John F. Parkhurst, Folsom; appointed by the Board of Governors of the California Community Colleges;

Theodore J. Saenger, San Francisco; appointed by the Trustees of the California State University; and

Harry Wugalter, Thousand Oaks; appointed by the Council for Private Postsecondary and Vocational Education.

Functions of the Commission

The Commission is charged by the Legislature and Governor to "assure the effective utilization of public postsecondary education resources, thereby eliminating waste and unnecessary duplication, and to promote diversity, innovation, and responsiveness to student and societal needs."

To this end, the Commission conducts independent reviews of matters affecting the 2,600 institutions of postsecondary education in California, including community colleges, four-year colleges, universities, and professional and occupational schools.

As an advisory planning and coordinating body, the Commission does not administer or govern any institutions, nor does it approve, authorize, or accredit any of them. Instead, it cooperates with other State agencies and non-governmental groups that perform these functions, while operating as an independent board with its own staff and its own specific duties of evaluation, coordination, and planning,

Operation of the Commission

The Commission holds regular meetings throughout the year at which it debates and takes action on staff studies and takes positions on proposed legislation affecting education beyond the high school in California. By law, its meetings are open to the public. Requests to speak at a meeting may be made by writing the Commission in advance or by submitting a request before the start of the meeting.

The Commission's day-to-day work is carried out by its staff in Sacramento, under the guidance of its executive director, Kenneth B. O'Brien, who is appointed by the Commission.

The Commission publishes and distributes without charge some 30 to 40 reports each year on major issues confronting California postsecondary education. Recent reports are listed on the back cover.

Further information about the Commission, its meetings, its staff, and its publications may be obtained from the Commission offices at 1020 Twelfth Street, Third Floor, Sacramento, CA 98514-3985; telephone (916) 445-7933.

LIBRARY SPACE STANDARDS AT THE CALIFORNIA STATE UNIVERSITY

California Postsecondary Education Commission Report 91-1

ONE of a series of reports published by the Commission as part of its planning and coordinating responsibilities. Additional copies may be obtained without charge from the Publications Office, California Postsecondary Education Commission, Third Floor, 1020 Twelfth Street, Sacramento, California 95814-3985.

Recent reports of the Commission include:

90-15 Services for Students with Disabilities in California Public Higher Education, 1990: The First in a Series of Biennial Reports to the Governor and Legislature in Response to Assembly Bill 746 (Chapter 829, Statutes of 1987) (April 1990)

90-16 Standardized Tests Used for Higher Education Admission and Placement in California During 1989: The First in a Series of Biennial Reports Published in Accordance with Senate Bill 1416 (Chapter 446, Statutes of 1989) (April 1990)

90-17 Academic Program Evaluation in California, 1988-89: The Commission's Fourteenth Annual Report on Program Planning, Approval, and Review Activities (June 1990)

90-18 Expanding Information and Outreach Efforts to Increase College Preparation: A Report to the Legislature and Governor in Response to Assembly Concurrent Resolution 133 (Chapter 72, Statutes of 1988) (June 1990)

90-19 Toward an Understanding of Campus Climate: A Report to the Legislature in Response to Assembly Bill 4071 (Chapter 690, Statutes of 1988) (June 1990)

90-20 Planning for a New Faculty: Issues for the Twenty-First Century. California's Projected Supply of New Graduate Students in Light of Its Need for New Faculty Members (September 1990)

90-21 Supplemental Report on Academic Salaries, 1989-90: A Report to the Governor and Legislature in Response to Senate Concurrent Resolution No. 51 (1965) and Subsequent Postsecondary Salary Legislation (September 1990)

90-22 Second Progress Report on the Effectiveness of Intersegmental Student Preparation Programs: The Second of Three Reports to the Legislature in Response to Item 6420-0011-001 of the 1988-89 Budget Act (October 1990)

90-23 Student Profiles, 1990: The First in a Series of Annual Factbooks About Student Participation in California Higher Education (October 1990)

90-24 Fiscal Profiles, 1990: The First in a Series of Factbooks About the Financing of California Higher Education (October 1990)

90-25 Public Testimony Regarding Preliminary Draft Regulations to Implement the Private Postsecondary and Vocational Education Reform Act of 1989: A Report in Response to Assembly Bill 1993 (Chapter 1324, Statutes of 1989) (October 1990)

90-26 Legislation Affecting Higher Education During the Second Year of the 1989-90 Session: A Staff Report of the California Postsecondary Education Commission (October 1990)

90-27 Legislative Priorities of the Commission, 1991: A Report of the California Postsecondary Education Commission (December 1990)

90-28 State Budget Priorities of the Commission, 1991: A Report of the California Postsecondary Education Commission (December 1990)

90-29 Shortening Time to the Doctoral Degree: A Report to the Legislature and the University of California in Response to Senate Concurrent Resolution 66 (Resolution Chapter 174, Statutes of 1989) (December 1990)

90-30 Transfer and Articulation in the 1990s: California in the Larger Picture (December 1990)

90-31 Preliminary Draft Regulations for Chapter 3 of Part 59 of the Education Code, Prepared by the California Postsecondary Education Commission for Consideration by the Council for Private Postsecondary and Vocational Education. (December 1990)

90-32 Statement of Reasons for Preliminary Draft Regulations for Chapter 3 of Part 59 of the Education Code, Prepared by the California Postsecondary Education Commission for the Council for Private Postsecondary and Vocational Education. (December 1990)

91-1 Library Space Standards at the California State University: A Report to the Legislature in Response to Supplemental Language to the 1990-91 State Budget (January 1991)

91-2 Progress on the Commission's Study of the California State University's Administration: A Report to the Governor and Legislature in Response to Supplemental Report Language of the 1990 Budget Act (January 1991)