

# The Berkeley Campus Space Plan · 1981



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[University of California, Berkeley. Buildings + campus development committee]

# The Berkeley Campus Space Plan

## The I&R Component of the Long Range Development Plan

University of California at Berkeley  
October 1981

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# Background and Organization

# The Task

## THE TASK

The Berkeley campus of the University of California is recognized for the eminence of its academic programs and of its faculty, for the quality of its students and the expertise of its staff, and for the character of its physical setting with its hilly background, its carefully preserved open spaces and the blend of its buildings which bear witness to its growth over time, recording its history of over a hundred years. Buildings over fifty years old were obviously designed for another era, and behind their deceptive facades their obsolescence is readily noticeable. Many of the younger buildings fall short of keeping pace with evolving curricula and the research needs of new faculty and fail to provide satisfying environments. In the coming years, new construction on campus will be necessary but it must be coupled with intelligent husbandry of the existing physical plant to maintain the tradition of excellence at Berkeley and to meet long-unfulfilled needs under conditions of stringency and competition for space. Functional, adequately equipped, efficient, safe and comfortable spaces must be provided in sufficient quantity and must be distributed under realistic and equitable allocation standards to provide the optimal environment on the Berkeley campus for the conduct of its academic, research and public service functions. Buildings and their environs must also be aesthetically pleasing and conducive to the creation of an uplifting social climate. Only the best in space planning should be entertained, matching the eminence of Berkeley's splendid reputation in academia. These goals of excellence in space planning with efficiency in operation call for the development of a comprehensive space plan as part of a Long Range Development Plan for the Berkeley campus.

The Berkeley Campus Space Plan is designed to provide the basis for the continuing process of space planning on campus and the data for developing projects conceived within guidelines of a Long Range Develop-

ment Plan. It is essential for the orderly growth, modification and rehabilitation of the physical plant on campus in the years ahead. At the start of his administration, Chancellor I. M. Heyman assigned a high priority to a comprehensive multi-phase effort under his guidance to achieve these goals. The first two phases of this effort are designed to result in a series of documents constituting in their aggregate, the Berkeley Campus Space Plan. Phase I, the Campus Space Resources Survey, inventories the existing conditions of space resources on campus, evaluates their adequacy and shortcomings in supporting existing programs, and suggests possible improvements for further study. Phase II builds upon the results of the survey and conducts studies in depth of the problematic areas identified under Phase I. With heavy involvement of faculty and staff, it projects the effect on space needs of anticipated programmatic changes likely to occur in the next five to ten years. Design and technical experts cooperate in this phase to explore and assess the merits of alternate strategies for responding to identified current and anticipated needs. It concludes with the formulation of proposals for improvements to be implemented with assigned priorities over time.

The two-phase effort requires the study of space resources needs of all academic programs and of support activities on the central campus and a number of peripheral and satellite locations. Vice Chancellor - Research and Academic Services George J. Maslach is the administrative officer responsible for the Campus Space Resources Survey and for development of the Berkeley Campus Space Plan and Capital Improvement Program. He is assisted by the Buildings & Campus Development Committee (Sami Hassid, Chair) in the study of all campus space with a special emphasis on academic units and academically related support activities. Nonacademic study areas are the responsibility of Vice Chancellor Robert F. Kerley, who has entrusted the organization of work in that area to Coordinator - Physical Planning, Dorothy A. Walker. The Chancellor's

Physical Planning Group (CPPG) determines policy and monitors the progress of work in the various facets of the total effort. The CPPG is chaired by Chancellor Ira Michael Heyman and is composed of Dean Richard Bender, Assistant Chancellor Glen Grant, Vice Chancellor Robert F. Kerley, Vice Chancellor George J. Maslach, Assistant Chancellor Errol W. Mauchlan, Vice Chancellor Roderic B. Park, and Coordinator - Physical Planning Dorothy A. Walker, with BCDC Chairman Sami Hassid and Assistant Vice Chancellor - Facilities Management Gaetano Russo as resource persons.

For the survey of academic units under Phase I, buildings on campus have been grouped into geographical clusters roughly following the pattern of precincts introduced by Dean Richard Bender and the Campus Planning Study Group in the series Urban Design Studies for the Berkeley Campus (1979). For the Phase II studies, academic and research units on campus have been distributed along discipline lines for assignment to one of five task forces whose jurisdiction often cuts across geographic precincts. Task forces have also been formed to study academic as well as administrative support activities in a campus-wide fashion cutting across disciplines and geographic precincts.

The present document, along with the companion reports produced in the course of the study, constitutes The 1981 Berkeley Campus Space Plan. It formulates projections of space needs for the campus for the balance of this century, and supplies the background and rationale for these projections. It includes extracts from completed Phases I and II reports, and reports on the progress of work by the support activities task forces.

The studies reported in this document are limited to central campus, roughly defined as the rectangle bounded by Bancroft, Oxford-Fulton, Hearst and Gayley-Piedmont, with a few exceptions of buildings adjacent to but outside the rectangle. Therefore, buildings on the hill, at the

Richmond Field Station and at other satellite locations are excluded. Within the perimeter of the central campus, minor structures and temporary buildings scheduled for early demolition are excluded from consideration in the list of candidates for projects under the Campus Space Plan. Similarly excluded are minor projects that can be accomplished through the Minor Capital Improvement Program as presently defined, or through the current level of budgetary allocations to the units on campus.

This document was prepared by faculty and staff of the Buildings & Campus Development Committee, who also designed the procedure for the study. It is based on materials extracted from previous plans and studies, on reports obtained from building users as prepared by unit representatives and assembled by building coordinators, and on site visits and technical assessments by staff from the Department of Facilities Management and the Chancellor's Office, with assistance from the Conservation and Environmental Quality Committee and the Campus Planning Study Group. In carrying out this work, the support and hard work of a large number of individuals who participated in the various stages of Phase I and Phase II work, and in the effort of the task forces must be acknowledged. A list of these contributors is to be found at the end of this document.

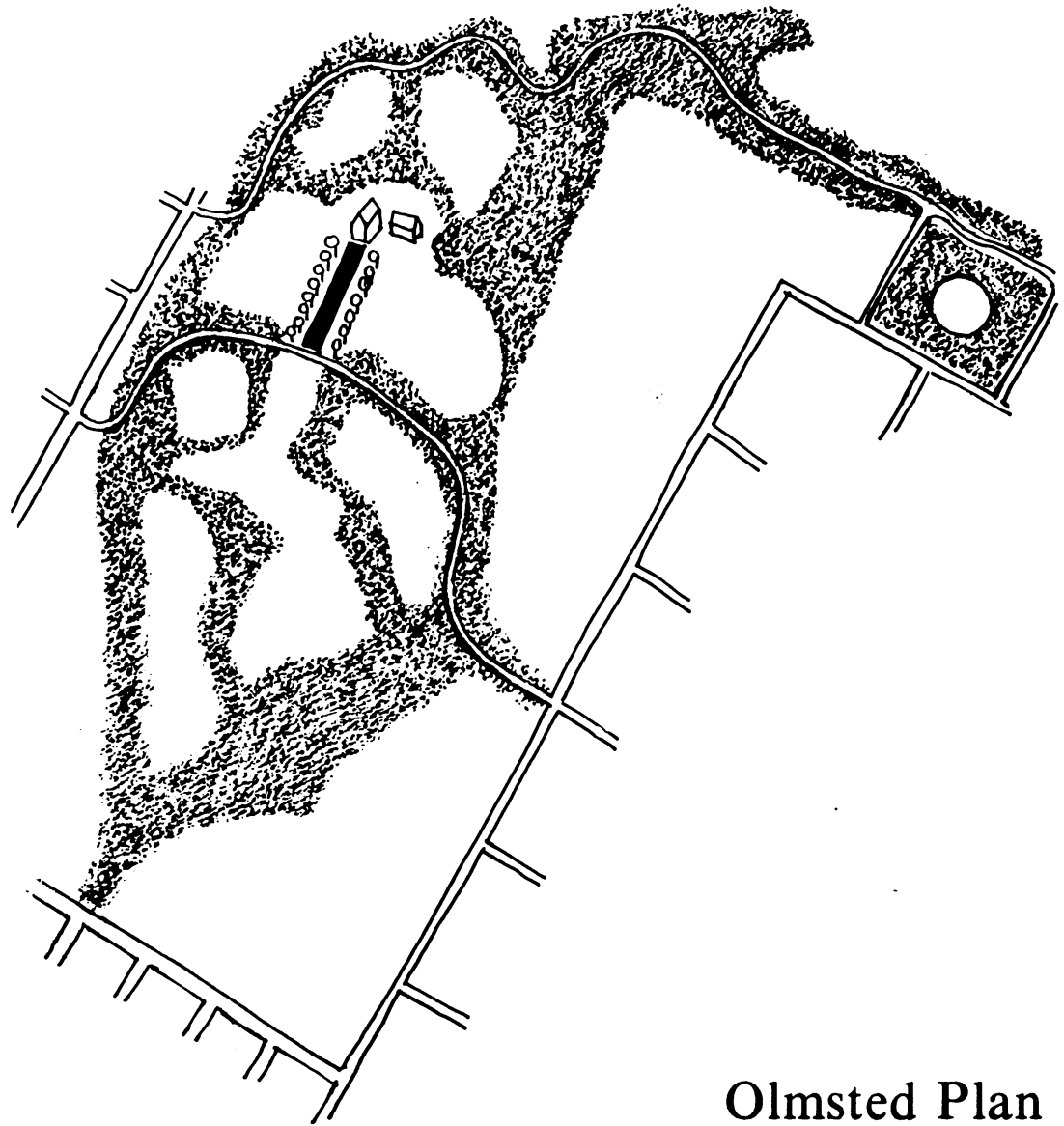
History

1860 - 1896

### THE FOUNDING OF THE UNIVERSITY

In 1860 the College of California dedicated its new campus, 160 acres of farm land in Berkeley between the north and south branches of Strawberry Creek. The site was selected "because of its abundant water supply, its mild climate, the absence of severe winds, the rolling landscape abundantly covered with oak, sycamore and bay trees, the superb views to the Golden Gate and Sausalito mountains [and] the rather convenient but not pressing proximity of Oakland and San Francisco." It was, in other words, a wholesome and idyllic setting more appropriate for the future great university the founders envisioned than the campus in the City of Oakland. In 1864, the College Homestead Association was formed for the purpose of acquiring and selling lots in the vicinity of the college tract to fund its buildings. In two years the Association acquired an additional 320 acres for speculative residential development. A plan for development of these "college grounds" was commissioned by the College's Board of Trustees from Frederick Law Olmsted, who was at work on various projects in the state about that time.

Olmsted's plan reflected the picturesque concept of landscaping carried out in his other works, notably New York's Central Park. Speculative residential tracts of four and five acres with winding roads and paths surrounded the campus, which was approached by a formal avenue. Two buildings - one of brick, stone and iron to house the library, records, and scientific collections; the other of wood for classes, faculty offices, and an assembly hall - comprised the academic institution. They were to be sited on an artificial plateau to take advantage of the open vista to the Golden Gate. Other amenities were a large green for athletic activities, park areas, and parkways to the Bay and to Oakland. Though thoroughly acceptable,



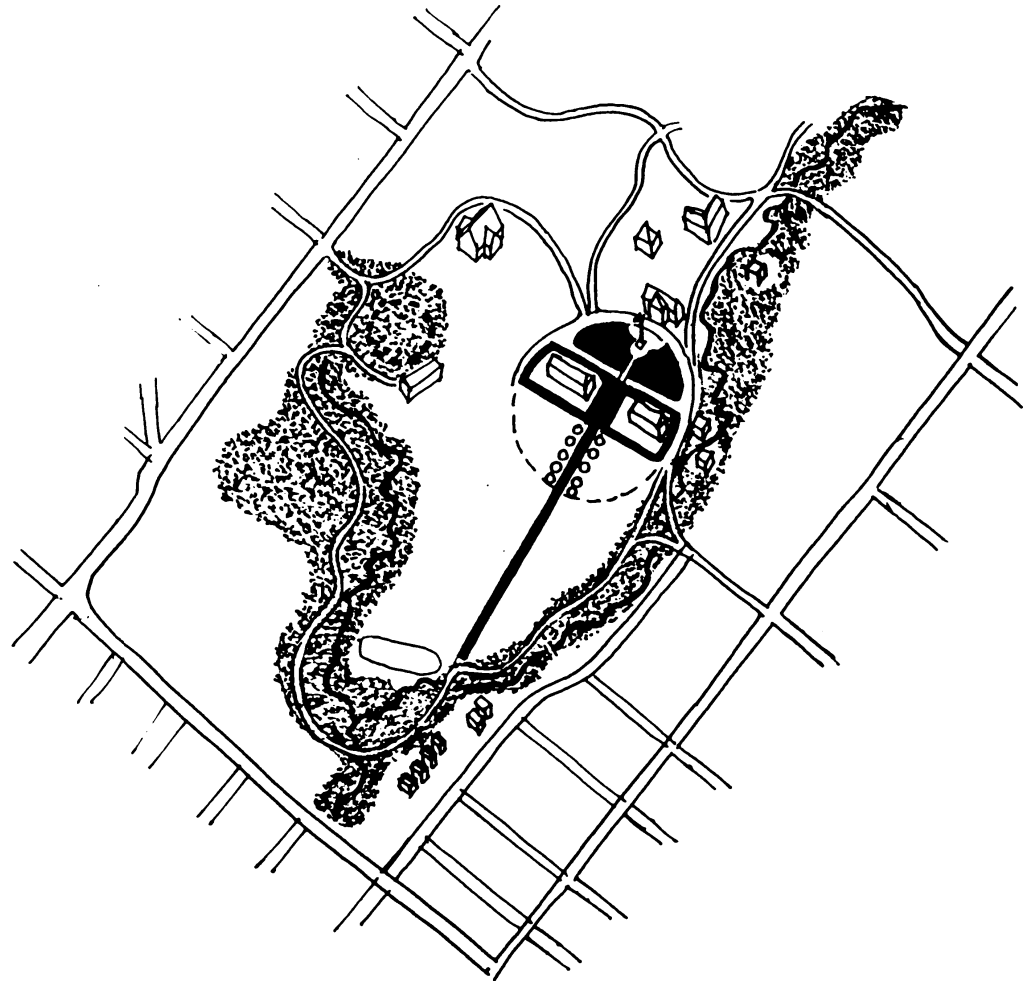
Olmsted Plan

Olmsted's plan remained unfunded largely because the remoteness of the community made it a poor real estate market. The location of Piedmont Avenue, the south and west campus entrances, and part of the Campanile axis are vestigial elements of this first plan.

Meanwhile, the Morrill Act was signed in 1862 giving land grants to states that established colleges for agriculture and the mechanical arts. In 1866, the California legislature took advantage of this Act to found the Agricultural, Mining and Mechanical Arts College. The proposed site for this technical school was a tract to the north of that of the College of California. In view of its economic insecurity and the injurious competition certain to follow the establishment of the state college, the College of California offered its holdings to the state in 1867 on the condition that the two institutions merge to become a complete university. The legislature accepted the proposition, and, with the signing of the Charter or Organic Act, the University of California was born, with a Board of Regents to govern it. The townsite had been named for George Berkeley, Bishop of Cloyne, who had visited the colonies in 1729 with the idea of founding a university. The founders particularly fancied his long epic poem, the last stanza of which reads:

Westward the course of empire takes  
its way;  
The four first acts already past  
A fifth shall close the drama with the  
day;  
Time's noblest offspring is the last.

In 1870, The Regents adopted a plan drawn up by San Francisco architect David Farquharson. This plan incorporated many of the features of Olmsted's plan and increased the number of buildings to include six "spacious and elegant buildings" for the College of Agriculture, the College of Mechanical Arts, the College of Engineering, the College of Mines and the College of Letters. The focal building of this group was to be called the Hall of California. By 1873, two nearly completed



Farquharson Plan

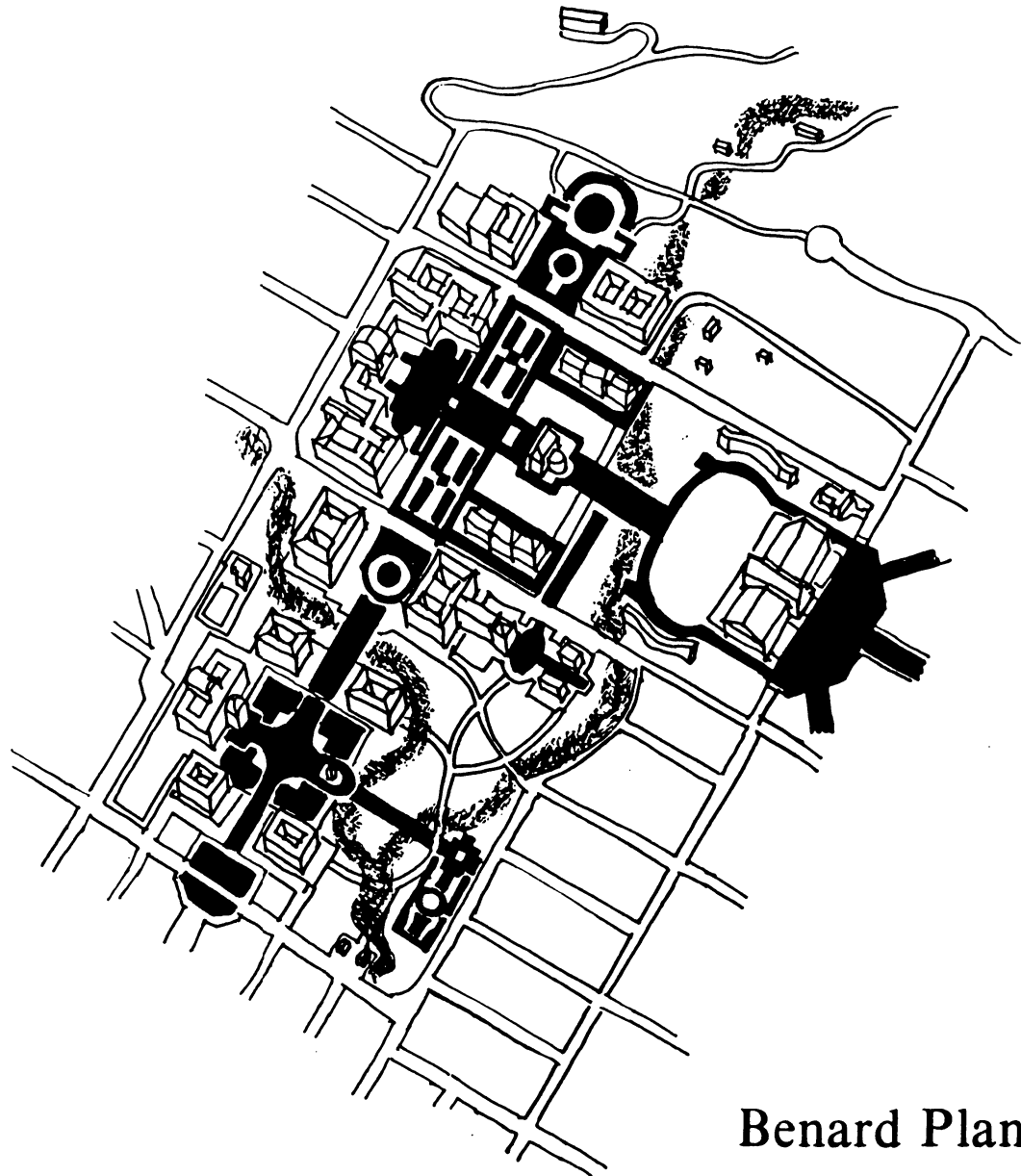
buildings were the scene of July graduation exercises for the first twelve students, known as the "twelve apostles." Both North and South Halls were completed for the University's fall term in September, 1873. They were located approximately where Olmsted had sited his buildings part way up the sloping site and oriented to the Golden Gate.

Eight years later Bacon Hall, the library, became the focal building at the head of the Golden Gate axis. By 1897, more major buildings, Mechanics, Engineering and Mining, and the Chemical Laboratory, had joined this nucleus. Lesser structures, mostly of wood frame construction, were informally sited about the campus on the more level portions of the land. The Botanical Gardens were laid out north of North Hall and southwest of Mechanics. To gain level ground for the cinder running track, the central branch of Strawberry Creek was drained.

#### 1896 - 1902 THE EMILE BÉNARD PLAN

The need for a comprehensive plan to guide the University's future growth was recognized in 1896 by Regent Jacob Reinstein, a noted San Francisco Lawyer and a member of the class of 1873. Influenced by the views of Bérnard Maybeck, instructor in architectural drawing, Reinstein made a plea for a "comprehensive permanent plan" which would result in the progressive construction of buildings commensurate with the pride and dignity of a great and glorious state -- befitting the best and noblest purposes of that state."

Finding the Board of Regents receptive to the need for long-range planning, Phoebe Apperson Hearst, advised by Maybeck and Reinstein, offered to finance an international competition for a physical plan for the University. This generous proposal was accepted by The Regents. A jury of five internationally known architects was chosen, and invitations were extended to architects throughout the world to enter the competition.



Benard Plan

As expressed in the following extracts from the "Programme" for the competition, published in December 1897: "The University of California possesses extensive and well located grounds; besides, it has at its disposal sufficient resources to begin the erection of a great center of learning. But it will require many years to complete the work in all its parts, and it is to be expected that the Programme of each division will undergo some modifications before the general work is completed. The special arrangements of each division or department cannot, therefore, be settled at the present time.

"On the other hand, confusion will arise, and the possibilities offered by a beautiful site would be lost, if the preliminary work were undertaken without a comprehensive idea of the whole, and without a previously formulated general plan.

"Only the adoption from the start of a well conceived general plan will permit the promoters to proceed wisely and with confidence in the creation, successively, of the various colleges and departments which are to compose the University."

The competition guidelines listed the University's needs for the housing of the administration, offices, a library, a museum, an auditorium, a military establishment, gymnasias, dormitories to lodge 1,500 students, club houses, and an infirmary. Fifteen departments of instruction were to be accommodated and all buildings were "to be so connected as to insure easy communication, both open and covered, between the groups of buildings, and to contribute to the stately aspect of the whole."

At the preliminary judging in Antwerp, Belgium, in October 1898, eleven finalists were chosen from a total of 98 entrants to compete for the grand prize of \$10,000. Nine of these accepted an expense-paid trip to the site of the University, following which the final judging was held in San Francisco in September, 1899.

The following points were stressed by the jury:

1. The buildings should generally represent a university rather than a mere architectural composition.
2. There should be a convenient grouping of the educational sections without undue crowding or prevention of possible future expansion.
3. The purpose of the several departments should be clearly defined in the design.
4. The architectural forms should be adapted to the configuration of the grounds and preservation of their natural beauties.

The winner, Emile Bénard, an eminent French architect, had prepared his scheme without having seen the site. To bring his design in harmony with the actual physical conditions, Bénard came to the campus. He completed his revision in 1900, but declined the post of supervising architect and returned to Paris.

The Bénard plan embodied the aesthetic principles of the preeminent French architectural academy, the Ecole des Beaux Arts. It featured formal axes, bilateral symmetry, monumental scale and an eclectic classic style for the buildings. The belief that a design in accordance with universal architectural principles would insure "that there would be no more necessity of remodeling its broad outlines a thousand years hence than there would be of remodeling the Parthenon" was stated in the program. Still, the plan was not insensitive to the peculiarities of the site. The Olmsted axis from the hills to the Bay was accepted but shifted northward to line up with the grid of the City of Berkeley, which now had a population of over 10,000. This shift combined with changes in the land contours reflected the shift of emphasis from natural order to urban order. However, a concession to natural order left Strawberry Creek free to meander through the campus.

Having adopted as permanent Bénard's revised plan, The Regents passed a resolution in December 1900 prohibiting any sub-

stantial departure from it without the consent of a majority of a self-perpetuating Board of Advisors, to consist of the final competition jury plus three prominent architects. One of the latter, John Galen Howard of New York, was the fourth-place winner of the competition. Mrs. Hearst, at Bernard Maybeck's recommendation, selected him to design a building for the College of Mining in memory of her husband, Senator George Hearst. On December 21, 1901, Howard was appointed Supervising Architect for the University. In 1903 he became the first Professor of Architecture.

#### 1902 - 1927 JOHN GALEN HOWARD AND THE CLASSICAL PHASE

In 1902 while designing the Hearst Memorial Mining Building, Howard commented that he considered the Benard plan a preliminary one. Acting on this presupposition, he aligned the Mining Building with the existing campus nucleus. The ease with which Howard was able to alter the "permanent" plan reveals two things: first, that the program's statement that a design in accordance with universal architectural principles would insure "that there would be no more necessity of remodeling its broad outlines a thousand years hence than there would be of remodeling the Parthenon" was but dimly understood by The Regents; and second, that Howard, reacting with sensitivity to the site, would be able to press for a more pragmatic approach to the campus' future.

Eighteen campus buildings were erected during Howard's tenure. The Greek Theater (1903), funded by W. R. Hearst, and California Hall (1905) were his first major structures. Though not an element of the original plan, the Greek Theater was certainly consonant with the classic vision of the new university as the Athens of the West. Hearst Memorial Mining Building (designed in 1902 but not completed until 1907), Doe Library (1911, 1917), Boalt (now Durant) Hall (1912) and Agriculture (now Wellman) Hall (1912) also reveal Howard's

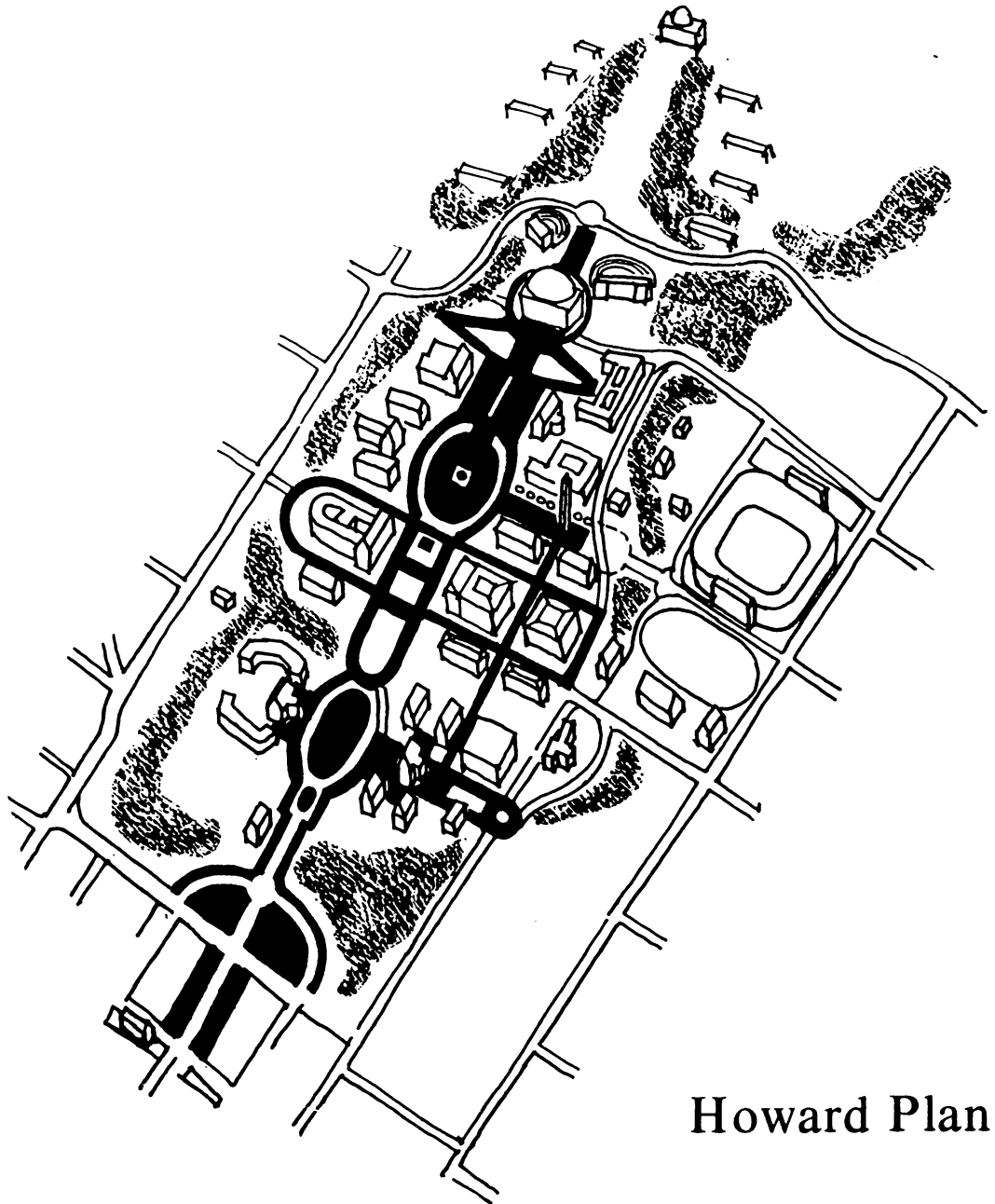
varied approach to a new architecture in the Classic tradition, but modified to reflect its new California environment. Still, Howard's allegiance to the Beaux Arts School is revealed in his consistent siting of the buildings on regraded, leveled land. Only Stephens Hall, the former Student Union built in 1923, is sited on different levels in accordance with the sloping site.

Howard revised the Benard plan twice: first in 1908 when he readopted the Olmsted-Farquharson axis to the Golden Gate, and second in 1914 when he reinforced this axis by orienting the buildings to the campus interior rather than having them face away from the periphery of the campus. The 1914 plan was approved by The Regents for the future building program and titled "The Phoebe Apperson Hearst Architectural Plan." In the same year a successful bond issue brought enough funds to construct Wheeler Hall, Gilman Hall, and Hilgard Hall.

In 1919 President Benjamin Ide Wheeler's long, autocratic administration ended. With the loss of his most powerful supporter, Howard's opposition to such proposals as the siting of the Memorial Stadium on a natural bird and wildflower sanctuary at the mouth of Strawberry Canyon was increasingly viewed as indicative of inflexibility and an unwillingness to cooperate with The Regents. In 1922 the commission for the Hearst Memorial Women's Gymnasium was given to Bernard Maybeck and Julia Morgan without Howard's approval. By 1924 the rift between Howard and The Regents was irreparable; his contract as Supervising Architect was not renewed. In 1927, he resigned as Director of the School of Architecture, although he continued to teach there until his death in 1931.

#### 1927 - 1938 GEORGE W. KELHAM AND CONTINUED CAMPUS GROWTH

In 1927, George W. Kelham, a prominent San Francisco architect, succeeded Howard



Howard Plan

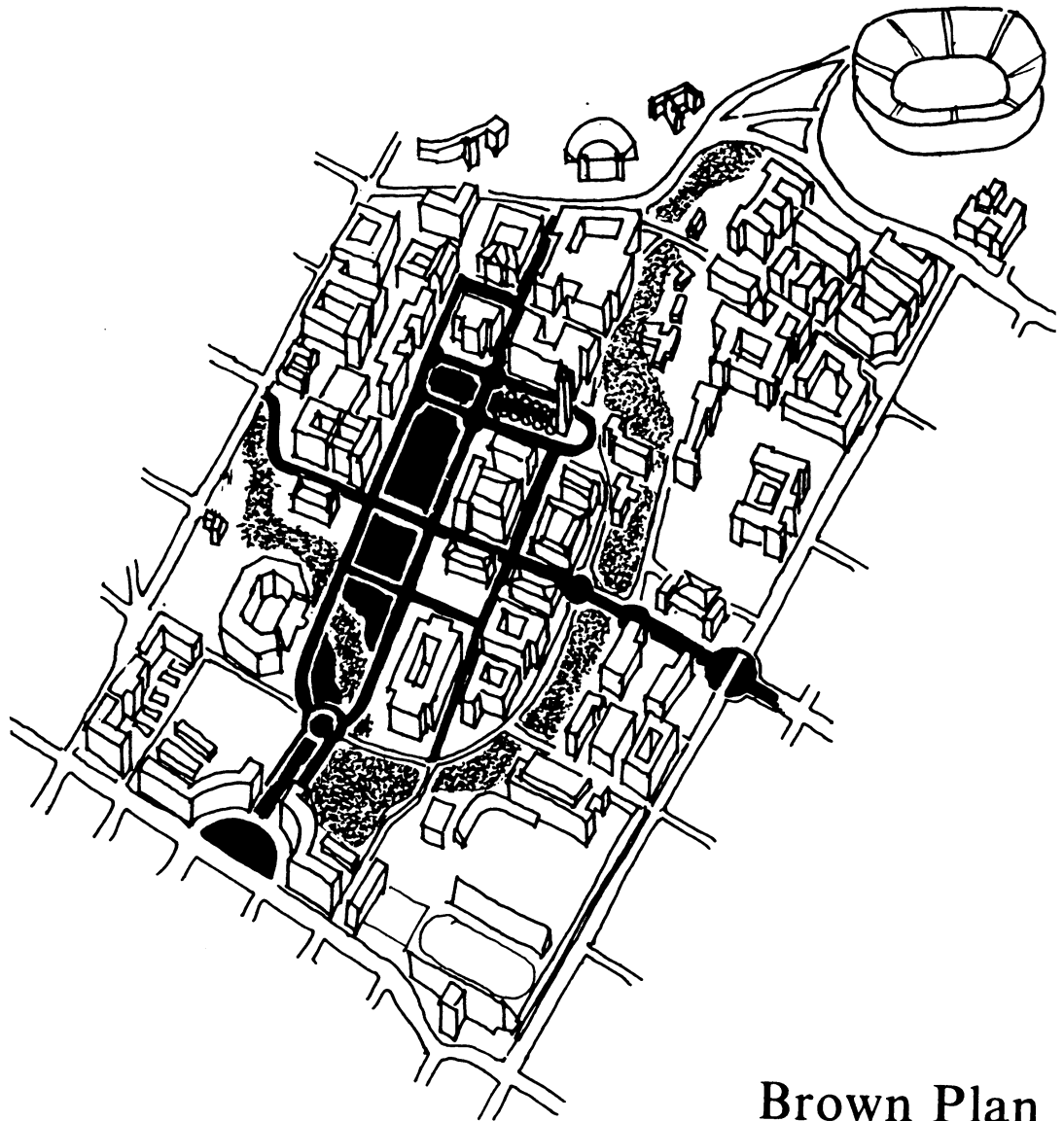
Warren Perry, who followed Howard as Director of the School of Architecture, Kelham's capacities tended toward finance and organization. "He is breezy, shrewd, efficient, restless and hasty perhaps but engaging - a business man's architect."

The year 1930 saw the construction of four buildings: Cowell Hospital, McLaughlin Hall, Giannini Hall and the Life Sciences Building. These facilities so strained the campus power plant that a new heating plant had to be built. Giannini, designed with W. C. Hays, completed the original agriculture complex projected in the 1908 plan. The Life Sciences Building departed from this plan and began a major change in the scale of campus buildings in that it combined in one building departments that were previously designated for a group of buildings on the same site. When finished, the Life Sciences Building represented an innovative concept in academic planning and was the largest building of its kind. It was designed by Kelham but the planning decisions behind it had been removed from the responsibilities of the Supervising Architect and given to a faculty Committee on Campus Development and Building Location. The Committee's first recommendation was that the Men's Gymnasium and playing fields be placed on land outside the limits of the original campus, beyond the southwest corner. This development, completed in 1933, combined with the 1927 Women's Gymnasium to extend the campus two blocks south.

**1938 - 1948**

#### **ARTHUR BROWN, JR. AND LIMITATIONS ON CAMPUS GROWTH**

Arthur Brown, Jr., another prominent San Francisco architect, held the post of Supervising Architect from 1938 to 1948. The combined effect of the Depression and the Second World War resulted in a curtailment of building activity during that period. Few major buildings were erected. Those which were - Sproul Hall (1942), Classroom Building (now Minor Hall) (1941) and Donner Laboratory (1942) - reveal Brown's concern for maintaining the archi-



**Brown Plan**

tectural character of Howard's buildings in the face of stringent budgets. The result was a group of stripped-down versions of the Neo-Classic style. Just above the main campus, Stern Hall, a dormitory in the modern style designed by Corbett and McMurray with William W. Wurster, was erected in 1942.

During this period, a major study of future campus needs was undertaken under Brown's supervision, with the cooperation of the Comptroller and the President's Committee on Campus Development, but Brown's work was hampered by the University's failure to provide a basis in policy. Unable to obtain satisfactory information on such policy questions as ultimate desired enrollment, automobile parking, land acquisition, student housing and general architectural character, Brown formulated a number of alternative plans during 1943 and 1944. Their basic assumptions were:

- The Benard Plan of 1900 had been abandoned.
- The Howard Plan of 1914 had been essentially modified in practice.
- Permanent buildings then standing would form the nucleus of future development; future building would continue the lowrise tradition.
- Dormitories were not to be built within campus limits.
- Existing parking facilities were not satisfactory and should be developed where possible.

In 1944, The Regents approved a "final" plan which retained the principal features of the 1914 plan with some significant modifications. The Campanile Esplanade was to be tied to the main east-west axis by means of a loop road; a group of new buildings was proposed on a minor north-south axis in line with the Hearst Mining Building; Strawberry Creek was to have a chain of open spaces following its course through the campus. Brown also called for the retention of the four-story height limit. As a result, virtually all the campus open spaces were seen as building sites.

Brown attempted to mitigate this by proposing series of long low buildings along much of the perimeter of the campus.

In the confusion and uncertainty of the immediate postwar years, very little of the Brown plan was implemented. A pattern of building along the campus perimeter was begun and, in 1946-47, enrollment pressures resulted in the addition of a group of so-called temporary buildings. These "temporary buildings," which by now seem almost as permanent as the rest, were moved to the campus from World War II deactivated Navy camps and erected by the U. S. Veterans' Educational Facilities Program.

#### 1948 - 1956 RENEWED CAMPUS DEVELOPMENT

During this postwar period the pent-up needs, energies, hopes and frustrations of the preceding decade were expressed in a sequence of major planning programs for the University as a whole and the Berkeley campus in particular. The nature of this sequence was affected by major changes in the actors and their relationships to each other and to a host of new issues.

In 1948 Arthur Brown, Jr. left the post of Supervising Architect. No one was appointed to replace him. In 1949 the Division of Architects and Engineers, originally created in 1944 as part of the Office of the Comptroller, was changed to the Office of Architects and Engineers and charged with performing the duties of the Supervising Architect. A plan was developed by this office and approved by The Regents in 1952. This plan, which included some elements of an alumni-sponsored proposal for high-rise dormitories to the south of the campus, was immediately subject to revision.

During this period two events contributed to the emergence of a new administrative structure. In 1950, William W. Wurster left his post as Dean of the School of Architecture and Planning at M. I. T. to become Dean of the College of Architecture at

Berkeley. Dean Wurster had great influence on the campus and a strong interest in campus architecture and planning. The second was a set of important structural changes in the university itself. By 1952 the difficulties of administering the increasingly complex affairs of the University caused President Sproul and The Regents to establish Chancellorships for the individual campuses. Clark Kerr, the first Chancellor of the Berkeley campus, was also deeply concerned with the planning of the campus. As a result of these developments, the Chancellor's Administrative Committee on Buildings and Campus Development became increasingly influential. In 1955 The Regents recognized this by creating the Committee on Campus Planning. This Committee was composed of Chancellor Kerr, Dean Wurster and another strong individual, Regent Donald McLaughlin. This trio, with Louis DeMonte, who headed the Office of the Architects and Engineers, serving as Chief of Staff, assumed the duties of the Supervising Architect. The replacement of an individual by a committee reflected both a change in value judgments from the early days of the University and Chancellor Kerr's emerging conception of the University as a "Multiversity." Under this committee's supervision the first long range development plan for the Berkeley campus of the University was produced in 1956.

By the time of publication of the 1956 plan a number of additions and changes had already taken place on the campus. The route along the eastern edge had been altered with the removal of a sharp bend, Earl Road, and the extension of Gayley Road to meet Piedmont Avenue. This construction took place from 1946 to 1951 and involved the removal of several buildings on the east side of Piedmont to make way for the construction of the Kleeberger Playing Field.

Major buildings had been constructed and major additions made to existing buildings. Among the new buildings were Lewis Hall (Chemistry) 1948; Mulford Hall (Forestry) 1948; Cory Hall (Engineering) 1950;

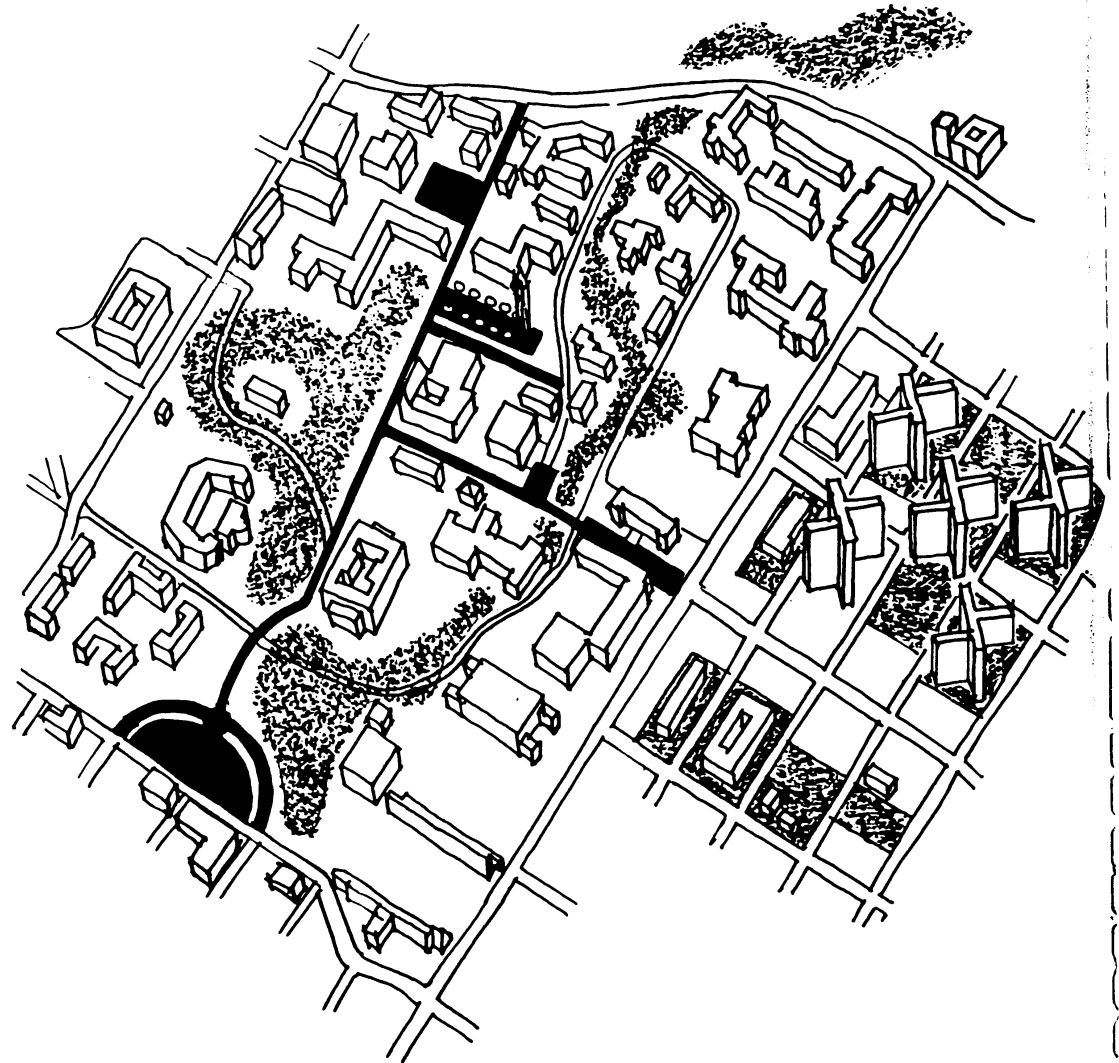
Dwinelle Hall (History classrooms and offices) 1952; Morgan Hall (Home Economics) 1953; Alumni House, 1954; and Warren Hall (Public Health) 1955. The campus architecture made major stylistic changes during this period. The first four buildings named above still adhere, though minimally, to the Neo-Classic style; the last four reflect contemporary design approaches. During this period also, major additions were made to LeConte Hall, Hearst Mining Building and the Donner Laboratory. Campus landscaping remained relatively untouched except for planting around the Administrative Building. Parking had been introduced to the Central Glade in 1951.

#### THE 1956 LONG RANGE DEVELOPMENT PLAN

The stated objective of the 1956 plan was "to present an aesthetically and financially sound physical design to meet the academic needs of an enrollment of 25,000 or more students, without sacrifice of the beautiful physical setting of the campus." The following guiding principles were set out.

Academic Requirements. Central campus space will be used primarily for academic needs, for most academic buildings must be located within a 10-minute class exchange area centering about the Library. This 10-minute walking distance limit will necessitate an increase in classroom utilization to meet the needs of an expanding enrollment and will also require that nonacademic functions and some research units be located in peripheral campus areas or on outlying properties such as the Gill Tract and the Richmond Field Station. Non-University agencies will be removed from campus space.

Building Location, Design, and Use. Central campus buildings will be constructed to the maximum size that the building sites permit, consistent with need and local topographic conditions. Related departments will be located in building clusters where possible, for reasons of aesthetics,



Architects and Engineers Plan

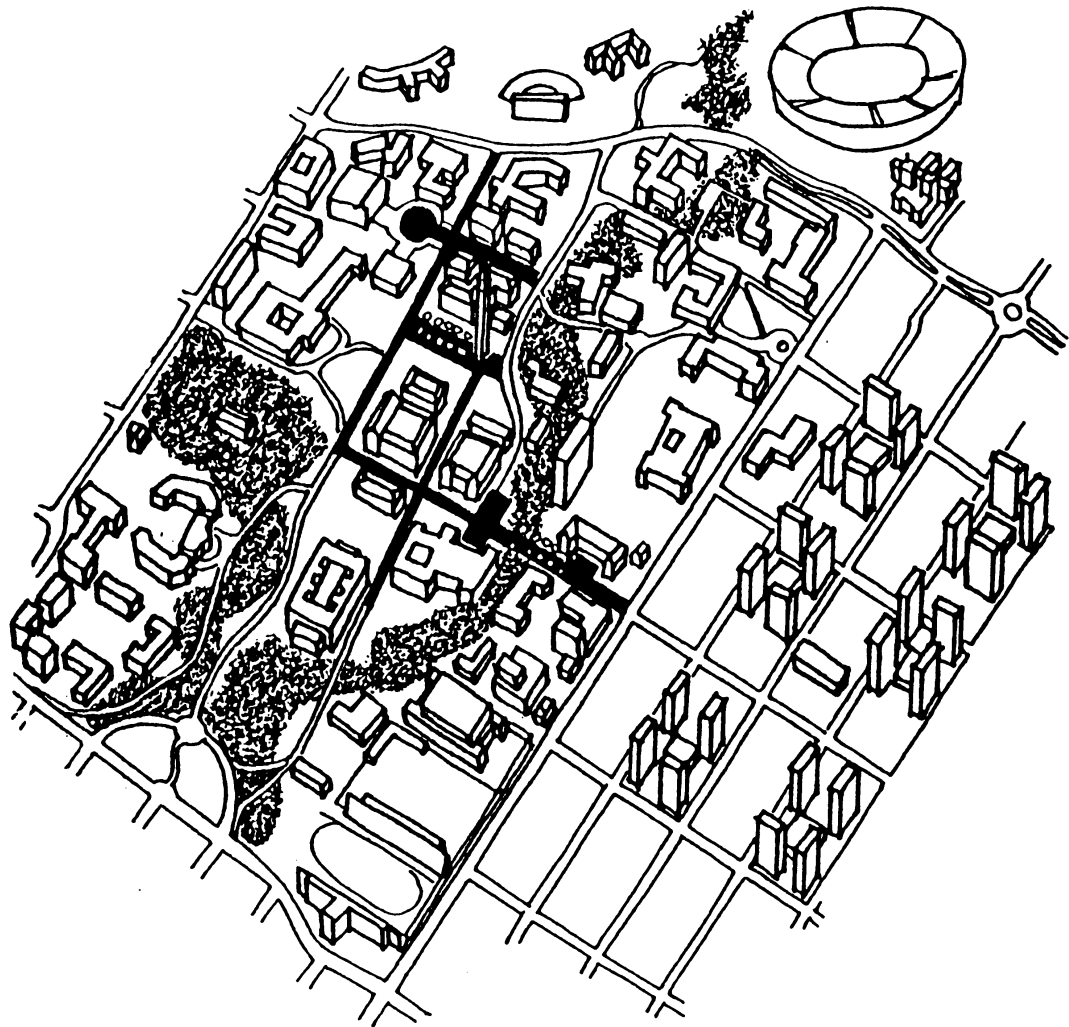
efficiency, and convenience of staff and students. Obsolete and temporary buildings will be removed, and the overall density of buildings to land area on the central campus will be limited to 25%.

Landscape, Regional Scenic Assets, and Historical Features. Every measure will be taken to preserve the beauties of the natural setting of the campus. The natural groves and woodlands along Strawberry Creek will set the prevailing feeling for campus landscape, modified by a few areas of formal character, such as Campanile Esplanade and the Mining Circle. Advantage will be taken of views of the Golden Gate, San Francisco Bay, the Berkeley Hills, and other scenic assets wherever possible in building siting and campus design. Historical features, such as South Hall, the President's House, Founders' Rock, Hearst Mining Circle, and Sather Gate, will be preserved.

Circulation and Parking. A system of pedestrian ways and gathering areas will facilitate travel on foot throughout the campus. Pedestrian and vehicular controls will be maintained at campus entrances to prohibit through traffic. Surface parking will be confined to areas limited in size. Some curb parking on the campus will be necessary, but it will be reduced for reasons of safety and aesthetics. Additional parking facilities will be provided underground or in open-deck structures wherever feasible in order to make optimum use of costly land.

Land Acquisition. Land in the immediate vicinity of the campus will be acquired only for functions requiring central campus proximity. The needs of major commercial, religious, and institutional organizations using property within expansion areas will be given the utmost consideration consistent with the welfare of the University.

University-City Relationships. Continuing liaison will be maintained with officials of the City of Berkeley and other nearby communities to help resolve development problems of mutual concern.



## Campus Development Plan

In order to maintain the site coverage ratio of 25% which had been set for the central campus, and still meet new needs, the following 28 buildings were slated for removal.

| <u>Removal Project</u>     | <u>Proposed Site Use</u>             |
|----------------------------|--------------------------------------|
| * Anthropology Museum      | Physical Sciences                    |
| Architecture               | Engineering                          |
| Art Gallery                | Landscape; Parking                   |
| * Bacon Hall               | Physics                              |
| * Band                     | Landscape                            |
| * Cafeteria                | Arch., L. Arch.,<br>and C. & R. P.   |
| Callaghan Hall             | Military Sci & Armory                |
| * Chemistry                | Chemistry                            |
| City & Regional Planning   | Engineering                          |
| * Corporation Yard         | Fields & Courts;<br>Parking          |
| Cowell Hospital Annex      | Cowell Hospital                      |
| * Decorative Arts & Annex  | Landscape                            |
| * Faculty Club Garages     | Landscape;<br>Parking                |
| * Freshman Chemistry Lab   | Chemistry                            |
| Architects & Eng Bldg.     | Landscape;<br>Parking                |
| * Handball Courts          | Landscape                            |
| * Hothouses & Greenhouses  | Psychology;<br>Education             |
| * Mechanics                | Engineering                          |
| * Music                    | Landscape; Parking                   |
| * Observatory              | Student-Faculty Center;<br>Landscape |
| * Old Radiation Laboratory | Chemistry                            |
| South Hall Annex           | Landscape                            |
| * Storehouse               | Landscape; Parking                   |
| * T1 - T3                  | Undergrad Lib; Classrooms            |
| T4 - T9                    | Landscape                            |
| * T10 - T11; T20 - T22     | Landscape                            |
| * T12                      | Earth Sciences                       |
| * T13                      | Engineering                          |
| T19                        | Landscape; Parking                   |

\* These buildings were actually removed

An important element of the 1956 plan was its recognition of the efforts of the City of Berkeley Liaison Committee. This was headed, from 1953 to 1957, by William W. Wurster. Among the many divisive issues faced by the two committees were University-generated street congestion,

student parking, University exemption from zoning and building regulations, University penetration of the central business district, and the provision of municipal services for the campus. Out of a lengthy process of negotiation came a recognition of the University's contributions and its obligations to the community around it. In effect, the University agreed to engage in cooperative planning with the City in respect to parking and vehicular circulation and to revise its program of land acquisition in order to respect the commercial development in areas immediately adjacent to the campus. Other issues such as the visual effect of new University buildings on the community and the visual integration of the city and the campus through landscaping were also stated as joint concerns. A major unresolved issue was the control of Gayley Road.

Campus landscaping became another important issue. The plan stated that "the landscape design of the campus should retain its natural informal appearance. A continuing replanting program is in operation for replacing over-age trees, especially the oak, bay and eucalyptus trees that give the campus its distinguished California setting." Areas of particular concern for their natural qualities were listed as Strawberry Creek, the Central Glade, the Eucalyptus Grove, Observatory Hill and Faculty Glade. Although a systematic maintenance and replacement program was indicated, it was not implemented. Finally, in the 1956 plan the University made a clear commitment to accommodating the private automobile as the principal means of circulation and access to the campus; there was no mention of alternatives.

## THE BOOM OF THE SIXTIES

By 1960 enrollment was 22,000 and still increasing. The amount of space in academic buildings had increased to 4.4 million square feet, nearly double that of the pre-war period. One reaction to this boom was that the first high-rise buildings appeared on the drawing boards.

Major buildings erected in response to the needs stated in the 1956 plan were: Hertz, Morrison and Kroeber Halls (1958-59) placed in the southeast precinct of the campus designated for the Arts; Campbell Hall (1959) in the area designated for the Physical Sciences; the Earth Sciences Building (1961) flanking Observatory Hill in the Engineering section; and Tolman Hall (1962) in the northwest section of the campus which had been reserved for Agriculture, Conservation and Life Sciences. Only the first three of these buildings observed the original height limit; the others were built in accordance with the second principle of the plan, one which made a vague reference to consistency with need and local topographic conditions as conditions for judging "maximum size." The design of these buildings reflects no clear attitude toward architectural continuity. Red tile roofs and rectangular volumes preserve some vestige of the original architectural character, but in general the buildings echo the contemporary modular, functionalist approach to design. Their resemblance to office buildings was reinforced by floor plans which did not provide lounges and common areas for social use by students and faculty. Instead, the cellular, dehumanized character of most of these structures epitomized the general anomie of the "Multiversity," as described by President Clark Kerr:

It (the Multiversity) is more a mechanism - a series of processes producing a series of results - a mechanism held together by administrative rules and powered by money. "The Idea of a Multiversity" is a city of infinite variety. Some get lost in the city; some rise to the top within it; most fashion their lives within one of its many sub-cultures. There is less sense of community than in the village but also less sense of confinement. There is less sense of purpose than within the town but there are more ways to excel. There are also more refuges of anonymity - both for the creative person and the drifter. As against the village and the town, the "city" is more like the



totality of civilization as it has evolved and more an integral part of it; and movement to and from the surrounding society has been greatly accelerated. As in a city, there are many separate endeavors under a single rule of law.

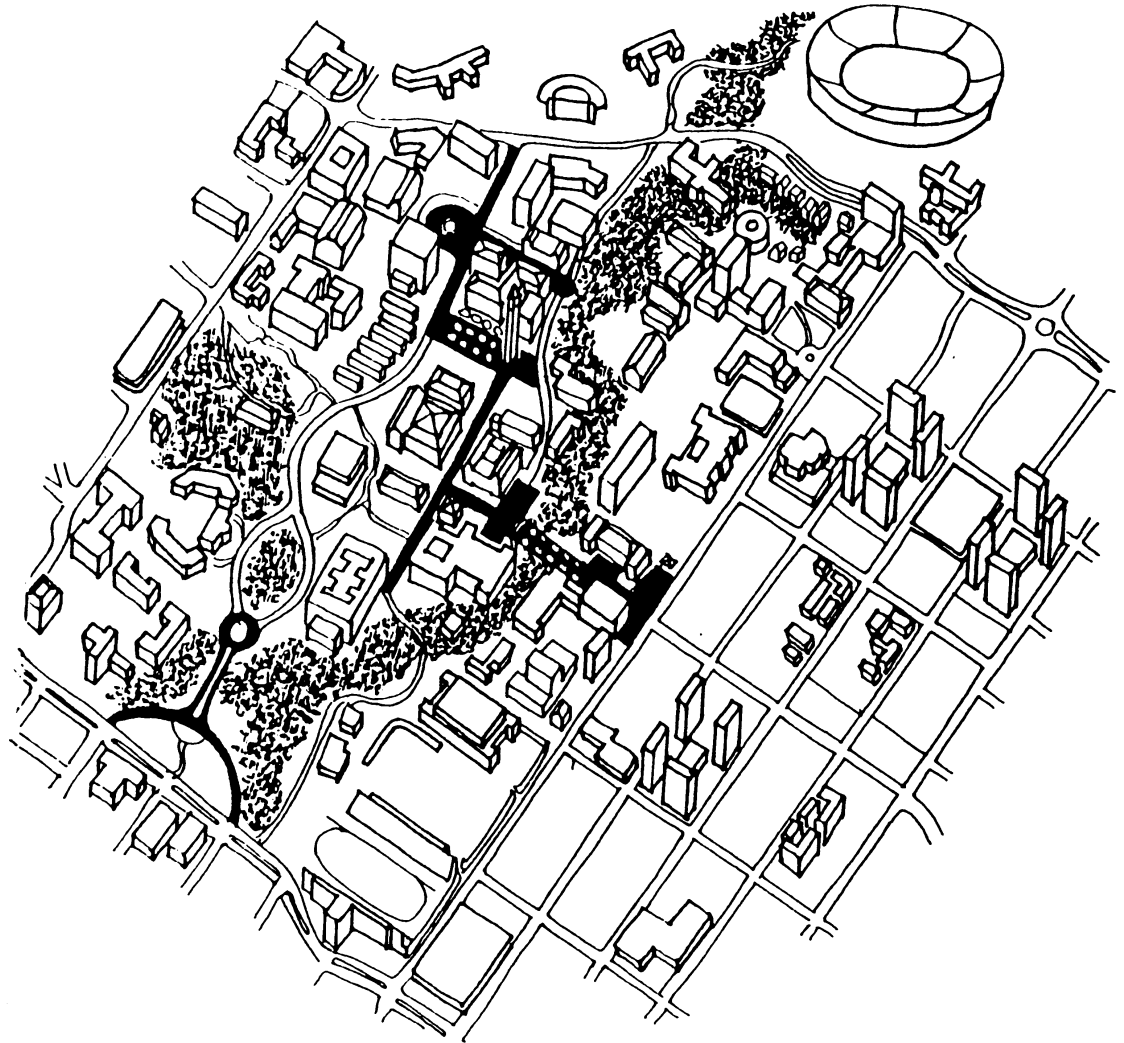
By far the most significant result of the 1956 plan, in both social and physical terms, was the student center complex. The result of a 1957 competition, the award winning project by DeMars and Reay produced an important realignment of campus circulation and a major public space on the south side of the campus. The events of the 1964 Free Speech Movement made this space an international symbol.

#### 1962 TO THE PRESENT

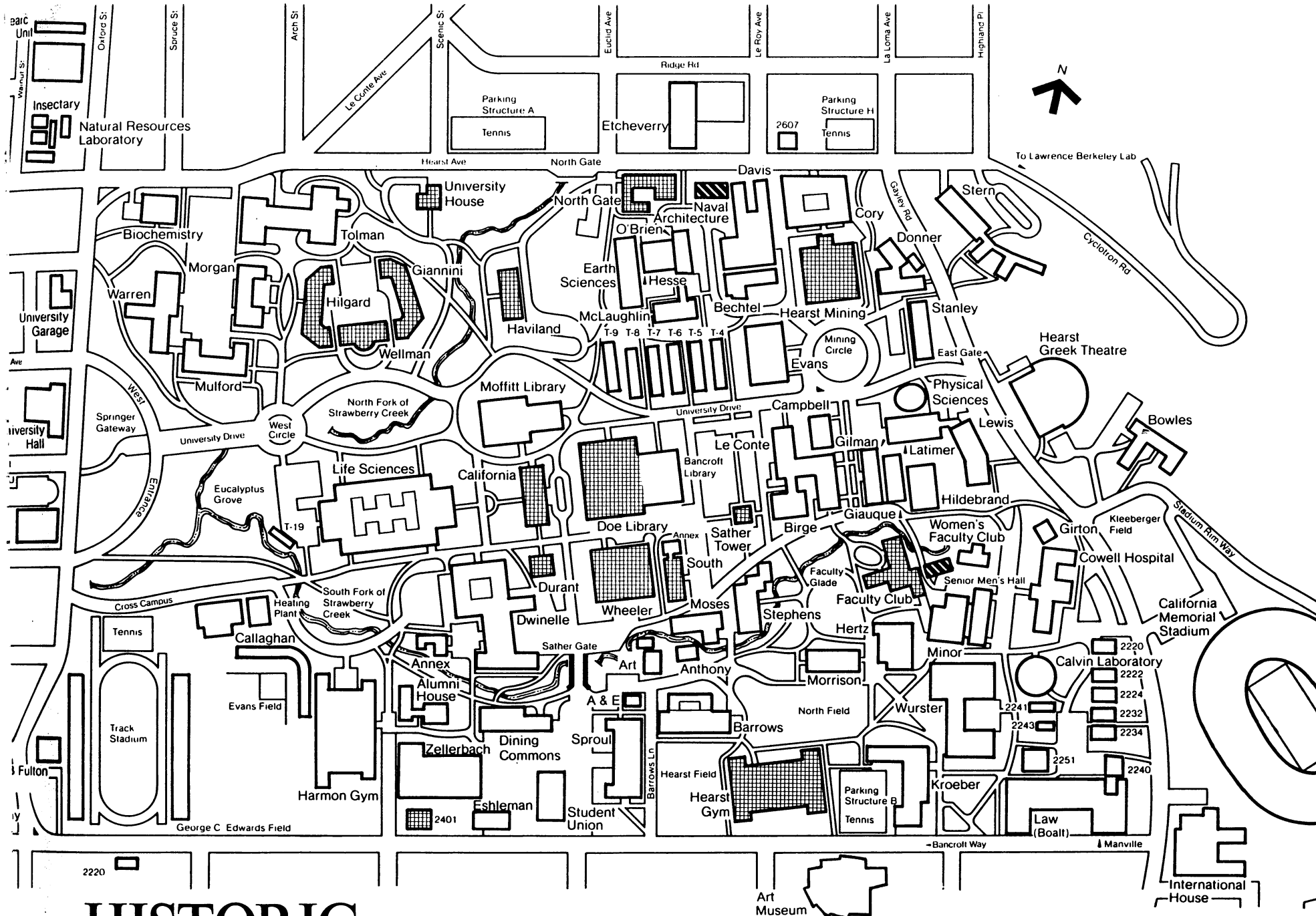
During the past nineteen years, most of the physical proposals of the previous plans have been completed. The campus as a social institution has weathered the assault of a society in crisis. Although informal changes to the 1962 plan have been produced, this plan remains the only approved, current plan of record. Until recently, however, the failure to implement its mechanisms for continued reevaluation drained it of all force.

The early 1960s were a time of high optimism. Funds were steadily increasing to provide teaching and research space. The Student Center had just opened, providing one of the most pleasant and urbane environments in the country. Housing was available in reasonable quantity and quality.

The change to a densely populated campus with massive, often anonymous structures and an impersonal bureaucracy was a cause of growing concern. Before the budget reversals of the 1970s, 2.5 million square feet of space was added - Wurster Hall, Barrows Hall, Evans Hall, the University Art Museum, Zellerbach Hall - to make a total of 7 million square feet. The built space on campus had doubled in only twenty years. Many of the new structures were large. They were rushed into place to



## The Campus in the Seventies



# HISTORIC DESIGNATION

## Berkeley Campus Space Resources Survey

### Legend

### Historical Designation



Buildings on National Register  
of Historic Places



Nominated for National Register  
of Historic Places

meet pressing needs but many were not high quality designs and they were not often sited with sensitivity. The Free Speech Movement of 1964, its sit-ins, and, later, the anti-war movement had profound influences on the campus environment. For several years, the new highrise dormitories were relatively vacant because students considered the buildings and the regulations governing life in them too "institutional." Protests were lodged against demolition of any structure that was old and small and against the construction of any new, large structure. In the late 1970s Chancellor Bowker and Vice Chancellor Heyman moved to rebuild a mechanism for sensitive planning and careful environmental control. In 1976 Richard Bender, the new Dean of the College of Environmental Design, was asked to lead a renewed campus planning effort. With a team of faculty and students based in the College of Environmental Design, a series of studies was undertaken.

In one of the first actions of the Campus Planning Study Group, a Survey of Campus Historic Resources examined each building on campus, the campus landscape and major gateways, bridges and monuments. As a result of this survey, in 1978 a group of campus structures, in their landscaped settings, were recommended for preservation, State landmark status and inclusion in the National Register of Historic Places. In the following year the Chancellor, President Saxon and The Regents were asked to support this action. The survey also identified particular spaces and elements of buildings and the landscape for preservation or restoration, provided brief historic documentation of all buildings and rated each building in one of the categories: candidates for landmark status, buildings with potential for continued use and adaptive rehabilitation, and buildings which may be considered for demolition or removal as pressure for new building increases.

In a second set of studies the Campus Planning Study Group prepared a series of Urban Design Guidelines for the Berkeley

Campus. These guidelines examined the history of planning and building on the campus, clarified the characteristics of the existing campus, proposed principles for future development, outlined a campus planning process based on broad participation by the campus community and began a series of case studies to develop guidelines for future development.

With the end of the explosive growth of the 1960s and the entry into a "steady state" period, planning and design have shifted to improving the use of existing space, to making all facilities accessible to handicapped persons, and to developing a workable and equitable parking system. Some research units have moved off the campus into a variety of structures such as the Anna Head School which serve as adaptable structures for institutions in flux. A new set of pressures and goals exists. Among them are energy conservation, historical continuity, ecology, an improved and expanded housing stock, the renewal and enrichment of the landscape, and a broad participation in decision making. The need and desire to involve all of the campus community in our future activities promise to bring richness and diversity to what we do.

In 1980, at the start of his administration, Chancellor I. M. Heyman set up a new organizational structure for campus space planning. He assigned a high priority to the current comprehensive multi-phase effort under his guidance designed to provide the basis for the continuing process of space planning on campus.

The development of the campus and its constant improvement as an environment for work, study, and recreation continue to pose an exciting challenge. The need to provide for the changing requirements of academic programs, the need to carefully remove the old as we add to the new; the need to add to the campus without a reduction in amenity, the need to preserve, restore and conserve, and the need to make the campus safe and accessible are challenges to our creativity.

# Academic Prospectus

## ACADEMIC PROSPECTUS

Of the eight general campuses of the University of California, Berkeley has a special responsibility, given its position among the leading academic institutions of the world, to maintain and enhance the quality of its graduate education and advanced scholarship and research. Berkeley's academic programs range over most fields of human knowledge, providing both undergraduate and graduate training of high quality. Its productivity is high. It confers approximately 3,400 graduate degrees annually, most of whose recipients remain in California and enter the professions, government service or industry or teach in institutions of higher education. It awards approximately 5,000 baccalaureates annually, most of whose recipients enter graduate programs. In addition, Berkeley is responsible for an annual inflow to the economy of the State of about \$80 million of Federal and private funds in support of research, and its faculty provides continuing expert assistance to State and local agencies and to private industry in the solution of many technological, social, scientific and economic problems. To carry out this teaching, research and public service mission, a determination has been made to maintain Berkeley's enrollment at its current level. This has imposed a severe strain on its physical facilities. These were constructed (and its academic units and services staffed) on the basis that its peak enrollment in any one term would be 27,500 students. Unfortunately, successive budgetary decisions over the years, and downward trends in student unit loads, have required that the campus exceed this headcount target. The present budgetary situation necessitates a minimum enrollment of at least 29,000 students in Fall quarter. Of the total student number, about 20,000 are undergraduate students, almost equally distributed between lower and upper division. 9,000 are graduate students, of whom approximately 3,000 are enrolled in doctoral programs. This result is a departure from the objectives of the 1962 Academic Plan which prescribed opti-

mal enrollment levels (to be attained by 1970) of 6,000 lower division, 9,500 upper division and 12,000 graduate students. Such significant deviation from the planning figures that governed the last phase of major construction on the campus has imposed severe strains on programmatically deficient academic buildings, nearly half of which were constructed over fifty years ago.

Against this background of aging and programmatically deficient academic facilities, Berkeley is progressively impelled into new, more technologically demanding and intensive areas of academic endeavor by the economic and social needs of California. It appoints approximately 50 new faculty per year in order to maintain a steady state faculty complement of approximately 1,430 ladder track positions. These appointments are carefully scrutinized and reviewed with respect to desired programmatic improvements and changes for almost six months before the authorization to recruit is made. Necessarily, the largest number of the new faculty appointments are assigned to existing disciplines to sustain and reinvigorate the curricular cornerstones of existing disciplines, such as the languages, History, Mathematics or Physics. Increasingly, however, a larger proportion of the new faculty appointments each year must be designated to develop faculty strength in new and emerging fields, many of which were not even visualized ten or even five years ago. To recruit the most able young faculty in such fields, which are most often characterized by high technology, Berkeley must have in hand, or have the prospect of providing space and facilities to accommodate these new programmatic changes, whether they be in Genetic Engineering, Physical Chemistry or Computer Sciences.

It can do so only by constructing new space and facilities or by renovating and upgrading existing space and facilities. Given the high density of building on the campus, and the extremely limited number of sites available for new construction, its space planning for these new and emerging aca-

demically requirements must inevitably place heavy emphasis on the renovation and upgrading of existing buildings. Such building modification is costly. To adequately remodel and upgrade laboratory facilities for new faculty members in high technology fields costs at least \$100 per square foot. Allowing for associated graduate students, postdoctoral fellows and professional research staff, the typical new faculty member in these fields requires an allocation of about 2,000 square feet of laboratory space. Thus the individual cost is about \$200,000, and to accommodate the ten or so new faculty members per year in high technology fields, as present circumstances dictate, requires an annual commitment to programmatic building renovation alone of at least \$2 million. Unless Berkeley is able to maintain this level of renewal and improvement during the decade of the 1980s, it will gradually relinquish its ability to make the personnel decisions which ensure its maintenance and enhancement as a great University to fertilize the continuing modernization of the State's economy.

The essential resource of a great University is its faculty. Its programs, its activities, the students it attracts depend crucially on the quality of the faculty. And the ability of a great University to recruit faculty of the caliber it needs is, in turn, crucially dependent on the adequacy and quality of the space it can make available to them for their teaching, research and scholarship.

This space plan is designed to ensure that the provision and deployment of the physical resources of the campus down the years matches the existing and prospective quality of its faculty in order to maintain and enhance the institution.

# Planning Process

## THE NATURE OF THE CURRENT PLANNING PROCESS

### I. Introduction

A reading of the history of planning on the Berkeley campus demonstrates the need to reexamine the campus planning process and develop an up-to-date Campus Space Plan in the light of the many changes which have occurred since the last Long Range Development Plan was completed in 1962. While there has been a sensitivity to this issue and an awareness of the need, the sense of urgency did not develop until the State required that such a plan be developed before further funding for major capital improvements would be granted. Thus, in 1980-81 the campus was catapulted into an extraordinary year of activity to produce not only the background data in modern form (Phase I) but the academic justifications (Phase II) for major changes included in the Berkeley Plan. The net result of this activity on the academic side involved approximately 1,000 faculty members, hundreds of staff, and dozens of students. The output is contained in five Phase I volumes containing an evaluation of space in the five precincts of the campus and also in a compilation of Phase II efforts which includes results from programmatic studies in each of the five precincts. Not only has it been a year of accomplishment, but it has been a year of extraordinary learning. In addition to the above effort, there has been developed in 1980-81 a Project Planning Guide for Berkeley's most pressing need in the life sciences as well as a detailed study of one of our greatest seismic and programmatic rehabilitation needs - the Doe Library; and in addition to that, the normal activity of space renovation goes on, including during the past year a consideration of several smaller program development projects such as the Mathematical Sciences Research Institute, an addition to the Space Sciences Laboratory, and the upgrading of Cory Hall for microelectronics research.

As a result of this year of intensive and enlightening activity, the campus has developed a unique Campus Space Plan which is different from the usual plans - not only past plans characterizing Berkeley, but many past plans characterizing other campuses within the UC system and other universities throughout the United States. In general, plans for this and other campuses have been prepared in periods of growth when there is a level of uncertainty as to the nature and number of academic and professional curricula to be accommodated within the campus and a tendency to propose generalized buildings that could be used for a variety of purposes. The focus has often been on land use planning, the aesthetics of building masses and the provisions for open space. In essence, such plans in the main concern themselves with the external environment of the campus. The Berkeley Plan must address some very special issues. To the best of our knowledge, the present Berkeley Campus Space Plan is the first to be conducted in-depth for an organization which has reached its enrollment target and exceeded it, has covered 20% of the land available to it with buildings, leaving little room for growth, and has a physical plant where nearly half the buildings are 50 years old and over. Changes in the needs of our programs are most apparent, especially in the fast moving sciences and the Professional Schools. Also, there have been many State mandated codes and Federal regulations directed toward seismic safety and occupational health and safety; large-scale grants from the Federal government for facilities development are no longer available; and the overall economic conditions make it imperative that future building activities involve a variety of fund sources, including private fund raising.

While there obviously will be some minor growth where natural in our revisions of previous plans, and while a few new buildings will be constructed which must be marvelous and inspirational additions to the campus, the limitations listed above speak for the need to pay closer attention

to the space within the existing buildings available to us. For the foreseeable near future, major capital improvements will be approximately evenly divided between the development of new space and the renovation of large blocks of older space. A balanced program of renovation of space must be developed to minimize the disruption of programs in any given precinct. A variety of smaller major capital improvements together with a large number of minor capital improvements will be needed because of greatly differing renovation needs of buildings with variable programmatic and code requirements.

In summary, therefore, the present needs for the Berkeley campus in terms of space planning have been addressed by the data gathering process of the past year and require a planning process which is geared to our steady state conditions in terms of enrollment and other limitations on the campus. Renovation and upgrading will play an increasingly large role in our planning process, and there will be a dwindling fraction of new building development. The excitement and ease of dealing with a growth process will have vanished. Fortunately, the new process requires a more intense examination of teaching, research, and public service processes; thus, the change over to a steady state condition cannot be considered all bad.

### II. Recent Organizational Efforts

During the growth period described earlier, two major elements of the planning and implementation process for capital development on the Berkeley campus were the Buildings and Campus Development Committee (BCDC) and the Department of Facilities Management (DOFM - which at an earlier date was called Architects and Engineers). The Buildings and Campus Development Committee, which consisted primarily of Academic Senate members, was to carry on the preliminary planning for new buildings, consider the allocation of space in the planning process, rejustify and allocate space following the construction of a building, and reallocate all space

which had been vacated by the units moving into the new structure. The guiding principles of the BCDC were heavily oriented to academic program needs. Individual building committees were organized with occupants of the buildings dominating the membership. There was, therefore, a network of information and space control with easy feedback from space users to space planners.

The role of the Department of Facilities Management primarily was to site buildings, to follow through on the design and construction based upon the programmatic specifications from the BCDC, and to complete and turn over a new building as a functioning unit to the designated departments. The working relationship between DOFM and BCDC was comfortable, though at times awkward, and any conflicts were resolvable. The roles of each group were fairly well defined in a growth process and the frustrating problems connected with minor capital improvements and code corrections had not yet arisen in great quantity.

A third and relatively small advisory group, the Conservation and Environmental Quality Committee (CEQC), also was formed during that same growth period. It was charged with monitoring the quality of the environment of this campus. This committee, while reporting to and advisory to the Chancellor, worked closely with the Department of Facilities Management and contributed in the maintenance of the Berkeley ambience.

Most recently two new independent working units have been added: The first is the Campus Planning Study Group under the leadership of Richard Bender, Dean of the College of Environmental Design - a group that has turned out a variety of reports concerned with land use, the relationship of buildings with the environment and the relationships of masses of buildings to each other. The Campus Planning Study Group's survey of campus historic resources and their preservation through landmark and national registry status has been a major

step forward in preserving the amenities which exist today at Berkeley. What should be noted, however, is that no studies of academic functions nor of utilization of the interior of buildings were carried out by this study group.

The other planning element which is of recent origin is the group called the Campus Planning Steering Committee, chaired by Dorothy Walker - Coordinator of Physical Planning. This group has been heavily involved in a leadership role studying a variety of planning issues such as those related to the development of sports facilities, student housing, and the boundary along the west side of the campus as it meets the downtown section of the City of Berkeley (the West Side Study).

With the end of the growth period the role of the BCDC rapidly reduced to the frustrating function of adjudicating mounting claims for space in the absence of any reserve, and into highly detailed consideration of minor capital improvements - a budgetary item whose funding, strangely enough, was being decreased with time and which was being encumbered with constraining reporting requirements. On the other hand, the Department of Facilities Management continued in a new arena, namely, in development of Project Planning Guides to respond to the growing need to correct building deficiencies as reflected in new code requirements, especially OSHA type Federal regulations. The vital and synergistic process of the BCDC with academic units was minimized, and the Department of Facilities Management became further estranged from the academic community.

### III. The Year 1980-81

With the enormous activity of the year 1980-81 completed, the campus once again has the bases for academic renewal of the physical plant. Considering the limitations mentioned above, namely, the paucity of sites for major new construction and the deteriorating condition of buildings constructed many years ago, a new integrated

planning and budgetary process needs to be put into place. While all of the activities mentioned above are necessary, they are carried out in a disjointed fashion with coordination coming often only at the final decision point where all elements meet by participating in the Chancellor's Physical Planning Group. This last administrative entity has only recently been organized under the leadership and chairmanship of Chancellor Heyman, and has provided a forum which in many respects is part of the learning process in which much of the campus has been involved during the past year.

Increasingly, faculty and campus administrators have come to realize that physical space in the center of the campus is a limited and precious resource which must be considered as a budgetary resource allocated temporarily to a given academic group and enhanced and maintained through minor capital improvements, grants, and maintenance projects to provide the necessary environment for teaching, research, and public service. For some years space has been treated as a budgetary item separate from the operating budget. Academic operational budget requests are considered by the Committee on Budget and Interdepartmental Relations of the Academic Senate (which is advisory to the Chancellor), and by the Provosts, the Vice Chancellor, and ultimately the Chancellor of the Berkeley campus. The Berkeley campus is the last campus in the UC system in which the capital development budget operates in an independent fashion under a separate office. In considering space as a resource it appears obvious that the procedure of requesting from all units, both administrative and academic, budgetary statements in operational terms should be coupled with budgetary statements each year for capital development programs. With such an integration and with the attitudes that have developed during the past year, especially from the academic side of the campus, the role of the Chancellor's Physical Planning Group assumes new importance. Obviously, that Group should be the centralized reviewing

body where ultimate decisions are made and from which planning and construction operations receive their instructions. Further, the history of the campus indicates that during periods of intense academic development and construction, the separate operations of the BCDC, an academic oriented group, working with DOFM, a group of professional architects and engineers, could be sustained and provide an efficient separation of duties and responsibilities. To round out the basic assumptions to development of an implementation process, it should be recognized that we will not be having large scale budgetary increases to provide for a continuous body of expertise located on this campus with line item authorizations in the regular operational budget. Recharge concepts based upon planning, working drawings and construction funds will be the primary basis for providing for the professional staff necessary for the large scale effort which must be laid out for the next thirty years. In addition, since private fund-raising will play an increasingly important role in the fund-raising effort, the role of the BCDC should be expanded to include preliminary planning.

Finally, one last piece of knowledge gained from the exercises of the past year is that the combination of intense faculty involvement with a limited number of (probably temporary) professional people in a given area is probably the best way to develop overall background justification and a Project Planning Guide. The experiment with one outside planning group demonstrated that the most difficult job was to educate an outside organization into the mysteries and intricacies of the operations of a major university research campus, and the key creative elements in the end results of that experiment came in large measure from the faculty. Thus, an in-house operation to the greatest extent possible is required during the coming years.

#### IV. The Planning Process

To illustrate the budgetary-BCDC-DOFM concept of capital development a flow

chart has been prepared which indicates the genesis of both administrative and academic unit requirements, campus planning review, implementation, funding and coordination. While the graphic demonstrates that in the main this is a linear process, it is obvious that within large-scale projects there will be a variety of consultative and feedback loops in order to maintain contact with user groups, advisory groups, and monitoring agencies such as Environmental Quality, Environmental Health and Safety, Biohazards, etc. In essence, the flow chart shows a process in which the key administrative professional unit would be a new single grouping of several presently separate operations, including primarily BCDC staff members, augmented by transfer of a limited number of personnel presently in DOFM, and further augmented, as necessary for individual projects, with planners and coordinators hired as part of the recharge operation for each project. The BCDC as a committee would be heavily involved not only in budgetary review and capital development approval functions, advising the Chancellor and The Vice Chancellor, but would contribute panels of names for faculty members to be involved in the preliminary planning and design function. In a like fashion, the role of the Department of Facilities Management is concentrated in the latter periods of the development process, including contractual relations and participation in working drawing activity, construction and occupancy. The roles of the two dominant groups, BCDC and DOFM, would be clarified, with a larger role for BCDC in planning and academic liaison together with an enhanced ability to produce Project Planning Guides. DOFM would continue in its traditional detailed design, code correction and construction mode.

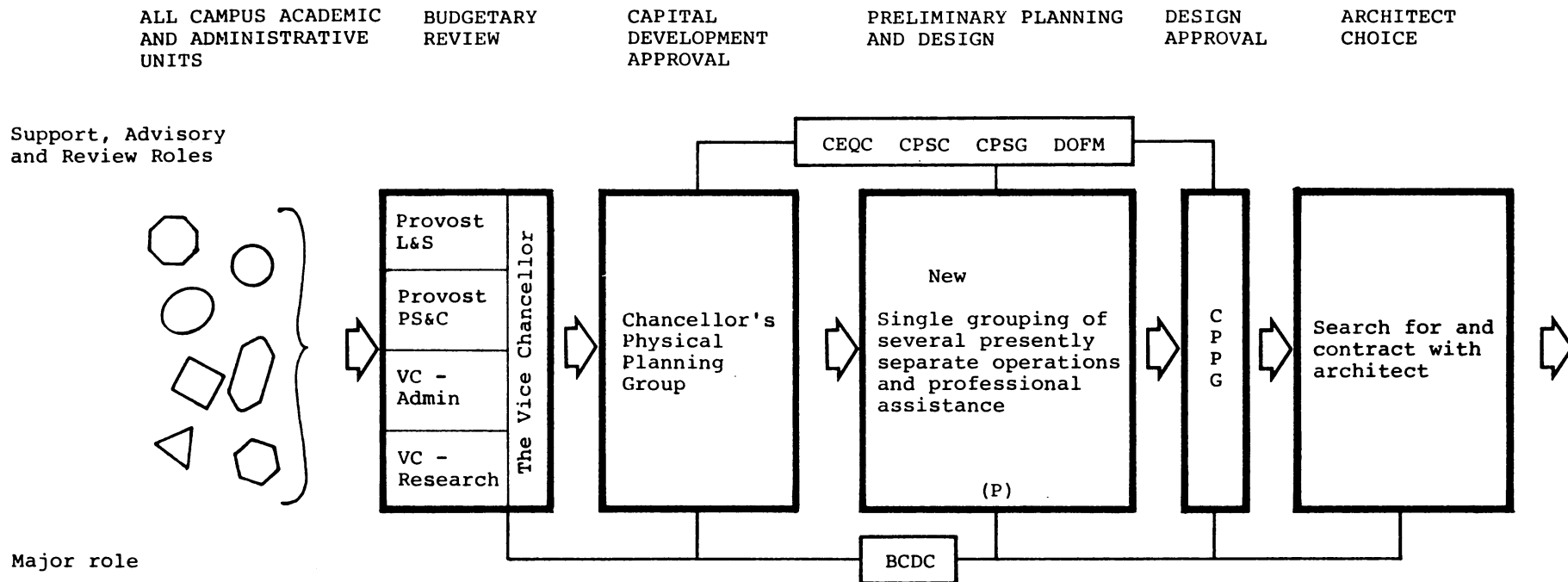
In prose form the chart indicates that all academic and administrative units will be required to indicate in a normal five-year rolling budgetary presentation the need for minor and major capital improvements, together with descriptions of the proposed improvements with programmatic justification. Minor capital programs and major

capital programs will be submitted and dealt with separately. The budgetary material will be sent to the cognizant Vice Chancellor through the Provosts or Associate Vice Chancellors, as the case may be, for the academic or administrative side of the campus. In essence, there is nothing new here except combining the call for capital improvements with a normal operational budget process utilizing the same formats and justification statements which have been used for many years. Under these conditions, the Chancellor's Physical Planning Group does assume a budgetary review role in an operational sense in addition to a capital development sense. Presentations will be made to the Chancellor's Physical Planning Group by the cognizant Vice Chancellor, with representatives of the user groups as needed. Some programs will be returned for further study and for further justification; others will be dropped or delayed for a longer period of time; and finally, a number of programs will be selected for major activity during a given year. The present Chancellor's Physical Planning Group composition probably is close to the optimal size, although individuals may be brought in for a special reason if, for example, safety hazards are a major problem or if a major research effort is being undertaken requiring more detailed discussion. For those projects which are chosen to continue into preliminary study and preliminary design stages a decision must be made at the first opportunity by the Chancellor's Physical Planning Group as to the funding strategy to be carried out for that particular project. Some projects will be carried out through private funding alone; others will be through State funding alone; but the great majority will be through some combination of private and State funds and possible long-range finance techniques yet to be identified. No projects should go forward without a realistic concept of the potential for obtaining funding within a reasonable time.

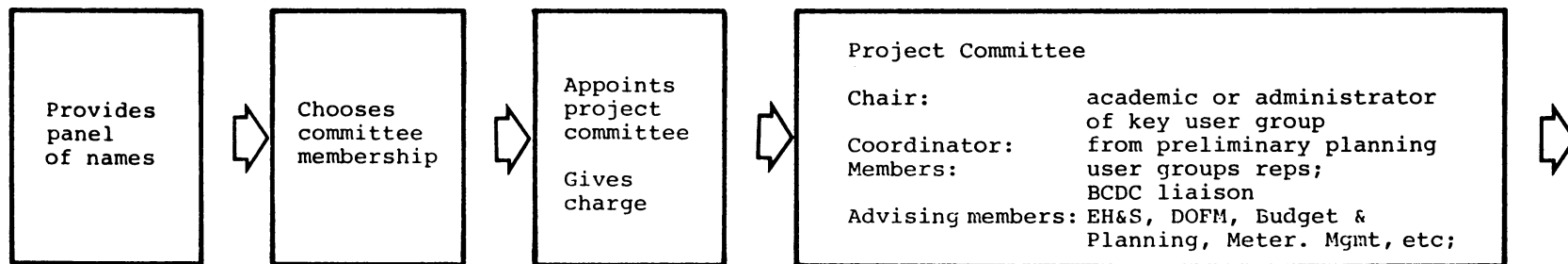
When a project moves into the preliminary planning and preliminary design stage, a project committee will be chosen, headed by one person - a project coordinator who

# THE PLANNING AND PROJECT COMMITTEE PROCESS

## Administrative Process



## PROJECT COMMITTEE MEMBERSHIP

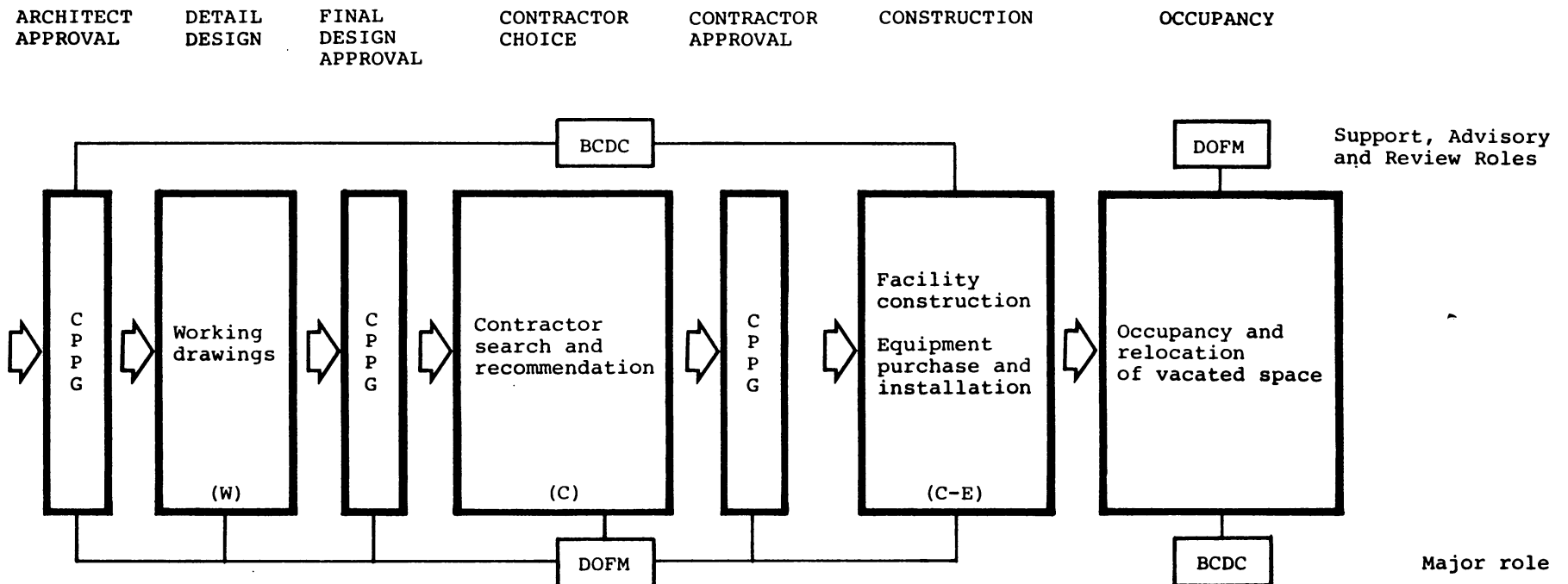


BCDC - Buildings & Campus Development Committee  
 CEQC - Conservation & Environmental Quality Committee  
 CPPG - Chancellor's Physical Planning Group

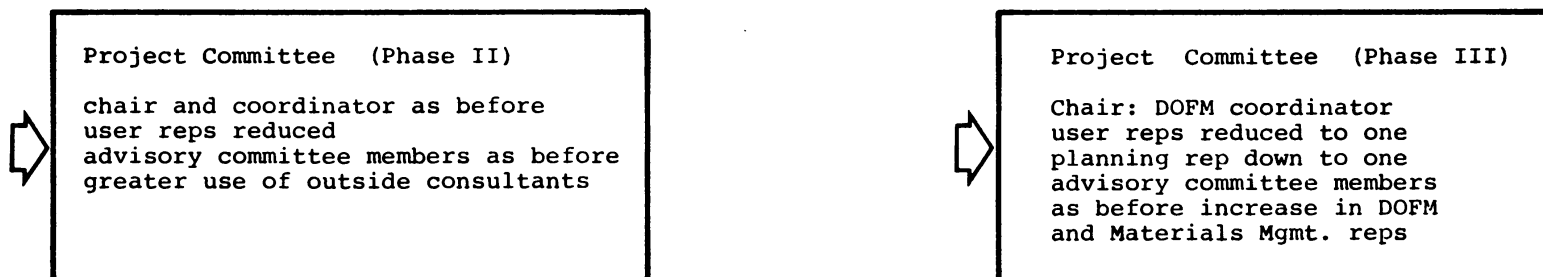
CPSC - Campus Planning Steering Committee  
 CPSG - Campus Planning Study Group  
 DOFM - Department of Facilities Management

# THE PLANNING AND PROJECT COMMITTEE PROCESS

Administrative Process (cont.)



## PROJECT COMMITTEE MEMBERSHIP



will be a professional. Project committee members should include representatives from the user groups and various groups or committees as they may be needed, including possibly someone from the Budget and Planning Office, Environmental Health and Safety, Environmental Quality, and Materials Management. Obviously there also should be a member from Facilities Management so that we have a continuity of membership as the project continues on into detailed architectural design, construction, and final occupancy. It would be expected that advisory committee membership need not attend all meetings of the project committee but should have materials sent to them so that everyone is informed. The project committee will have the responsibility for maintaining project control to assure that program needs are met within the budget and schedule. The user representatives will constantly relay information on the project to all concerned users who will assist in maintaining the project objectives. Various advisory members will review the documents as needed for local compliance and will assist in the design project as needed. When the preliminary design is finished it will, of course, come back for a second review by the Chancellor's Physical Planning Group and in the next stage will pass on to working drawings and bid documents preparation for construction. The bid process could well be carried out through the Business Office with the bids reviewed and one hopefully accepted. At that point the project would be turned over to the construction and equipment groups who basically are the Facilities Management and Materials Management people currently involved. The project committee will change and come under the leadership of the construction coordinator from Facilities Management. However, at least one user-coordinating representative who has served from the beginning of the project will move to this construction phase team. The executive architect or engineer also should be involved, but not necessarily on a continuous basis. The responsibility at this stage is to coordinate the overall construction process, assure that the schedule and

budget are within the limits imposed, and assure that the user groups are aware of the logistics of occupancy and the processing of equipment purchases.

Obviously a successful project will conclude with the physical situation where groups will move and release space located elsewhere on the campus. All space released will be redirected to the Chancellor's Physical Planning Group and will be reassigned following receipt of the recommendations of the BCDC. In many respects, therefore, the flow chart represents much of what is done now, but with significant additions and changes. First, all potential projects will be reviewed immediately before they are even considered for funding. The review by the Chancellor's Physical Planning Group hopefully will avoid many of the surprises that occurred in recent years when, for example, individual units tried to design a new law library on their own, placed an exhaust duct in the middle of the Campanile Way, or were unaware of the opportunities for a slightly expanded building encompassing a greater number of academic and research projects for a small additional cost. The second major change will be that the Planning and Design Group will coordinate a lot of loose ends which are now operating independently. The input from the Campus Planning Steering Committee will be related to the decisions made by the Chancellor's Physical Planning Group at the outset. All elements of the planning process of the campus will be fully informed. The BCDC will have a continuous involvement on a given project to the very end, although diminishing in scale beyond the planning process, while Facilities Management will be involved in coordination from the earliest stage with increasing responsibility during the final construction prior to occupancy. The role of Facilities Management in preparing proposals for improving the campus primarily in the code corrections area will be integrated with the academic proposals submitted by individual groups. The shift of individual personnel from Facilities Management to work as project coordinators and as lead personnel

in the development of Project Planning Guides and Environmental Impact Reports is the only transfer of personnel from the present organization pattern.

**Current Effort**

## DESCRIPTION OF CURRENT EFFORT

In the work that led to the formulation of the present Berkeley Campus Space Plan, the space resources available on central campus have been carefully studied in relation to the ascertained needs of academic and research units and of related support activities. For the study of academic and research units, of their needs and of the spaces they use, the campus has been divided into five "academic precincts" roughly following the pattern of precincts used by Dean Richard Bender and the Campus Planning Study Group in the series Urban Design Studies for the Berkeley Campus (1979). In the current work, the five academic precincts are defined as follows:

1. Engineering and Earth Sciences
2. Mathematics and Physical Sciences
3. Art, Music and Professions
4. Humanities and Social Sciences
5. Agriculture and Life Sciences

Map 3 shows the central campus of Berkeley as it is today (1981), and the geographic boundaries of the five academic precincts used in the survey of their space resources. Table 1 lists the buildings in existence in each of the five academic precincts including those selected for the detailed survey.

In addition to the study of "academic precincts," task forces have been organized to study specific support activities cutting across academic units and precincts. Five of the studied support activities relate directly to academic pursuits, and four relate to student services, administrative services, and general campus design. Work on four more support activities is also planned.

The five academically related support activities are:

1. Libraries
2. Museums, Exhibits and Special Collections

3. Animal Care Facilities
4. Classrooms and General Facilities
5. Computing Facilities

The four activities not directly related to academic pursuits are:

6. Student Activities and Services
7. Athletics and Recreational Sports
8. Administrative and Public Service
9. Campus Landscape, Open Space, Vehicular Circulation and Parking.

Support activities, the study of which is planned but has been deferred, include:

10. Food Services
11. Basic Utilities
12. Student and Faculty Housing
13. Periphery and Satellite Facilities.

Table 2 lists the buildings involved in each support activity including those slated for a detailed survey.

In each of the academic precincts and for each support activity, the work accomplished and under way is divided into two phases. Phase I is a survey and inventory of existing space resources, and an evaluation of their adequacy and shortcomings with suggestions for possible improvement. Phase II is a study in depth of space utilization and problematic areas in the respective precinct or support activity concerned. Building on the results of Phase I, and with heavy involvement of faculty and staff, Phase II explores the effect on space needs of programmatic projections for the next ten to twenty years, examines alternate strategies and identifies proposals for responding to current and projected needs.

In the study of academic precincts, the work in Phases I and II is neatly separated, each with its own group of teams or task forces conducting the work and a separate report produced for each phase of the work. Phase I work for all buildings surveyed in the academic precincts is directed by BCDC in cooperation with DOFM staff and with heavy involvement of the aca-

demical and research units surveyed. Phase II work for each precinct is entrusted to a task force drawn from the faculty and staff of the academic units involved with assistance from BCDC.

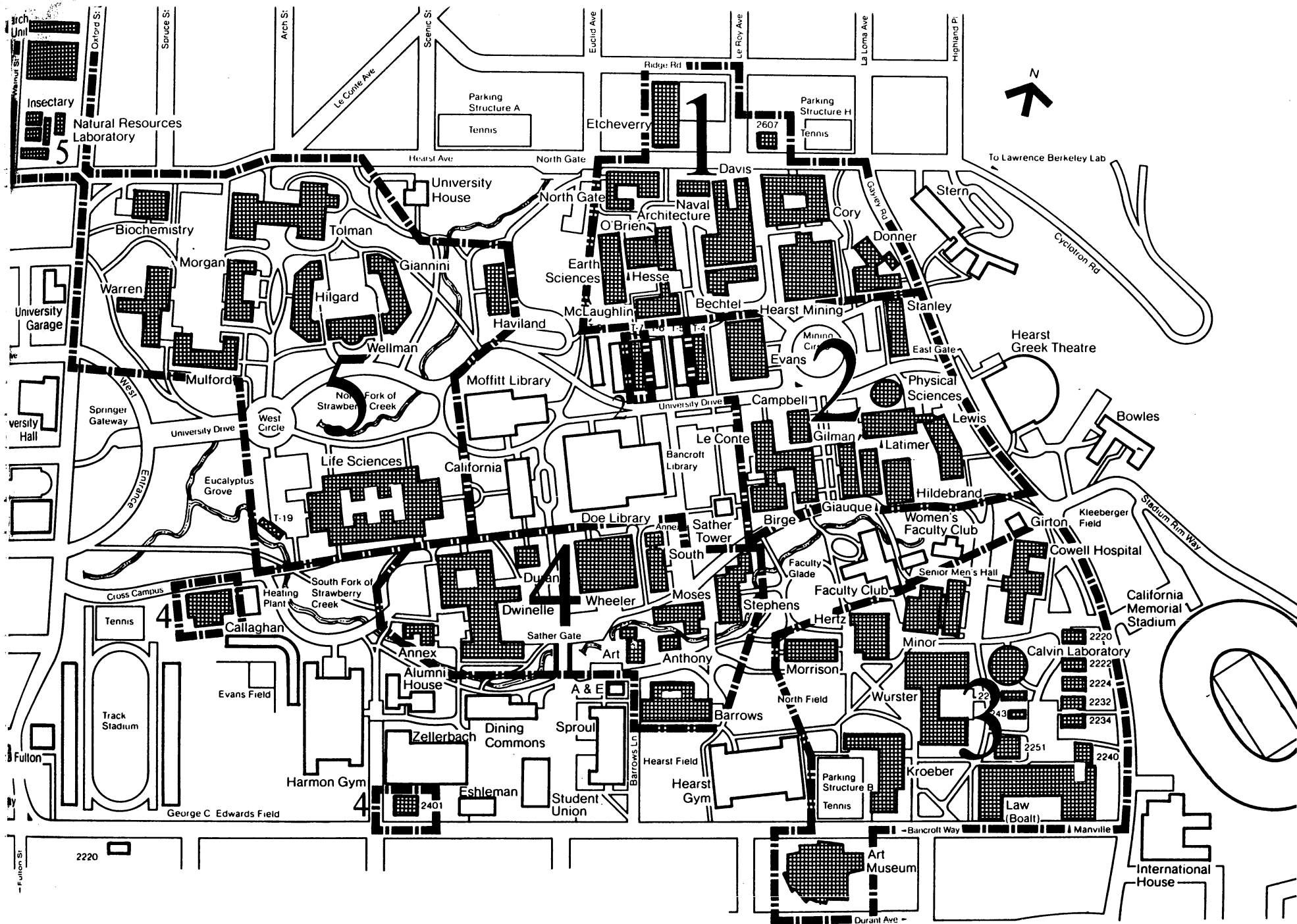
In the study of each support activity, Phases I and II are the charge of a single task force which starts with Phase I and carries on to Phase II. An interim progress report is produced as Phase I is completed, and the final report of the task force is scheduled to summarize the work in both phases.

The procedure followed in each of the two phases of work is summarized hereafter.

## PROCEDURE FOR PHASE I - ACADEMIC PRECINCTS

Major buildings situated within the geographic boundaries of an academic precinct are surveyed under Phase I, irrespective of their discipline affiliation. For each building, a Building Survey Team is formed, chaired by a faculty member from the Buildings & Campus Development Committee (BCDC), and also including the chair of the BCDC (Professor Sami Hassid), the senior BCDC staff analyst (Mr. Thomas Koster), and the architect from the Department of Facilities Management most familiar with the building. In some instances, this core group of four is augmented by a student representative, a representative from the Chancellor's Senior Staff (Vice Chancellor George Maslach), or the BCDC member who is serving as consulting landscape architect for the study (Mr. Russell Beatty).

Each unit occupying space in the building is asked to designate a Unit Representative familiar with space-related matters for that unit to act as the unit's coordinator. From these designated individuals, one is selected as the Building Representative and is asked to coordinate a visit by the Building Survey Team which collects information on the building and its occupants, examines the condition of the spaces in the building, and assesses their adequacy for



# PRECINCT MAP

## Berkeley Campus Space Resources Survey

their current functions and projected needs. Before the site visit, the Unit Representatives and the members of the Building Survey Team are provided by BCDC with an information packet and assessment guide, including basic space data for the building (gross areas and assignable square feet (ASF) by occupant unit and by category of use), floor plans, pertinent material from the Campus Historic Resources Survey, a summary of previously proposed minor and major capital improvements (including projects involving code and other deficiencies), a list of relevant studies, and an outline Procedure for Building Survey. The Building Representative is asked to confer with the other Unit Representatives and assemble additional information in advance of the site visit, including the unit's own assessments of the adequacy of the spaces and descriptions of known deficiencies.

The Building Survey Team members study the information packet on the building to be surveyed prior to the site visit. At the site visit team members talk with the Building Representative and others invited to the meeting. The programs and missions of units are clarified as necessary and representatives are asked about their experience with the use of the space and their knowledge of any major deficiencies they personally detect as well as those reported by building representatives or extracted from past studies and records. Areas which need improvement are identified.

Following the visit, the chair of the team consults with other team members, analyzes the assembled material and space occupancy data, and prepares a report including a description of the building's spaces, a history of building use and an evaluation of the building. Particular emphasis is given to characteristic features of large spaces and special use spaces such as teaching and research labs, classrooms, auditoria, and research and public service activities requiring special support systems. An assessment is made of the building as a whole and of its major subdi-

visions with respect to adequacy in meeting academic program requirements, effective utilization of space, history of changes in space utilization, code deficiencies and safety hazards, structural safety, accessibility, obsolescence of equipment, malfunctions or inadequate utilities, general quality, livability, maintenance and upkeep of the building environment, and adequacy in meeting personal needs of the building population and visitors.

These building reports, together with additional factual building information and floor plans, form the heart of the Survey of the Campus Space Resources report on each academic precinct. A summary section includes tables and maps with graphic displays of ratings of buildings on various scales of measurement.

The survey of the five academic precincts has resulted in five reports filed in 1981 as part of the Berkeley Campus Space Plan. The "Overview" sections of these reports are included in the section of the present document entitled "Academic Space Resources and Needs Survey."

#### PROCEDURE FOR PHASE II ACADEMIC PRECINCTS

Phase II work in each academic precinct starts with the appointment of a chairperson for a task force charged with conducting the necessary work. The composition of the task force and its mission can best be described by the following extracts of a typical letter from Vice Chancellor George J. Maslach to one of the Phase II precinct chairs:

#### "Re: Phase II of Berkeley Campus Space Plan for Precinct X

As you know from our discussions and your meetings with Professor Hassid and Tom Koster, we are undertaking with your assistance a second phase of work in the precinct as part of the development of a Campus Space Plan for the Berkeley campus.

You will be receiving copies of the draft report "Phase I of Berkeley Campus Space Plan, Precinct of Campus Space Resources Survey," which summarizes the results of a survey of the X precinct. The report includes an inventory of historical, descriptive, evaluative, and documentary data on buildings in the precinct, and an overview of the whole precinct as a geographic entity. Where applicable, it mentions suggested avenues for the solution of identified problems, as a basis for further study under Phase II.

Phase II, for which you are invited to form a task force, is intended to build upon the results of Phase I by conducting studies in depth of the problematic areas of the academic and research units whose total space assignment on the central campus, or a major portion thereof, is located in geographic precinct X. Discussion of these primary units, should address the space needs of these units and issues related to their use of space on the central campus, inside as well as outside the geographic limits of precinct X. It should also include issues related to any off-campus space used by these units. Secondary units represent academic and research units with the majority of their central campus space assignment lying outside the geographic limits of precinct X. For these units, discussion may be limited to issues related to space occupied by the units within the precinct as these issues affect the needs of the primary units.

The task force to conduct the studies of Phase II under your chairmanship for the X precinct should include a representative of each primary unit, preferably the head of the unit. Each unit, with your approval, should form a subcommittee comprised of selected members of its faculty and staff to investigate issues related to the unit and report to the task force through its representative. Representatives of secondary units should be included for issues that may affect their units. Student representation in the subcommittees should be encouraged for both primary and secondary units.

Table 1.

**CAMPUS SPACE RESOURCES SURVEY:  
CENTRAL CAMPUS BUILDING LIST**

**ACADEMIC PRECINCTS**

**Engineering & Earth Sciences (Precinct 1)**

1. Bechtel Engineering Center
2. Cory Hall
3. Davis Hall
4. Earth Sciences Building
6. Etcheverry Hall
7. 2607 Hearst
8. Hearst Memorial Mining Building
9. Hesse Hall
10. McLaughlin Hall
11. Naval Architecture Building
12. North Gate Hall
13. O'Brien Hall  
[Mineral Shed]  
[Nuclear Shed]  
[Lawson Adit]  
[Parking Structure A]  
[Parking Structure H]  
[Substation 2]

**Mathematics & Physical Sciences  
(Precinct 2)**

1. Evans Hall
2. Campbell Hall
3. LeConte Hall
4. Birge Hall
5. Latimer Hall
6. Lewis Hall
7. Hildebrand Hall
8. Giauque Laboratory
9. Gilman Hall
10. Physical Sciences Lecture Hall
11. Stanley Hall
12. T-4
13. T-7  
[Campbell Hall Annex]  
[Campbell Hall Trailer]  
[Stanley Hall Annex]  
[LeConte Trailer]  
[East Kiosk]

**Art, Music & Professions (Precinct 3)**

1. Law Building
2. Wurster Hall
3. Minor Hall
4. Minor Hall Addition
5. Hertz Hall
7. Kroeber Hall
8. University Art Museum
9. Calvin Laboratory
10. Cowell Memorial Hospital
11. 2241 College
12. 2243 College
13. 2251 College
14. 2220 Piedmont
15. 2222 Piedmont
16. 2224 Piedmont
17. 2232 Piedmont
18. 2234 Piedmont
19. 2240 Piedmont  
[Parking Structure B]  
[Minor Hall Trailers]  
[2224 Piedmont Garage]  
[Environmental Physiology Trailers]  
[Manville Hall]

**Humanities & Social Sciences (Precinct 4)**

1. Dwinelle Hall
2. Dwinelle Hall Annex
3. Durant Hall
4. Wheeler Hall
5. Barrows Hall
6. Moses Hall
7. Stephens Hall
8. South Hall
9. South Hall Annex
10. Art Gallery
11. 2401 Bancroft
12. Callaghan Hall  
[Substation 1]

**Agriculture & Life Sciences (Precinct 5)**

1. Life Sciences Building
2. Giannini Hall
3. Wellman Hall
4. Hilgard Hall
5. Morgan Hall
6. Mulford Hall
7. Warren Hall
8. Biochemistry Building
9. Tolman Hall
10. Haviland Hall
11. T-19
12. Oxford Tract Buildings  
[Substation 3]  
[West Kiosk]

Note: Names in square brackets refer to structures lying within the geographic limits of the precincts but not included in the detailed survey of the buildings' space.

When the task force and subcommittees are organized, a list of your recommended appointments should be submitted.

The mission of the task force and its subcommittees is the preparation of a draft report summarizing their investigations, findings and recommendations, with necessary supporting documentation. It is my hope that all of this material will be forwarded by you to BCDC by August 10, 1981 so that it can be processed in time for inclusion in my submission to Chancellor Heyman as part of the Campus Space Plan, which, as you know, is due in September 1981. The scope of the work will include the following:

1. Review of the Phase I document; comments, corrections and suggested change.
2. Review of the present use of space by the units in relation to academic plans and research programs, projected changes in instruction and research programs, and discussion of their space implications.
3. Proposals for reassignment of existing space as needed to correct imbalances in present and projected needs and allocation with evaluation of the merits of proposed reassignments.
4. If, after every effort to achieve space needs within the existing volume, additional space is needed, full justification of any net increase in the space currently used by a unit within the bounds of currently applicable space standards. Net increases in total space must only be entertained as a last resort after all possibilities for solution by internal reallocation within each unit and in the whole precinct have been explored. Possibilities for exchange of space with units in the precinct or other precincts should be studied where mutual benefit may ensue with minimal or no change in the aggregate space used.
5. Within each unit, a description of minimal adjustment, repair and remodeling work that needs to be done within existing space to correct current space imbalances and deficiencies, to improve space utiliza-

tion, to provide for anticipated programmatic changes, and to attain reasonable standards of comfort and appearance.

6. Identification of demonstrated unsafe conditions and deteriorated premises requiring demolition or major gutting, and proposals for replacement space in new or rebuilt quarters.

7. Preparation of a list of discrete project proposals offering realistic solutions to identified problems with short descriptions of work needed, evaluation and ranking. Recommendations shall be incorporated into a balanced, comprehensive space allocation plan for the precinct, showing alternate strategies for its implementation.

You may call upon the assistance of various campus groups as appropriate when needed by work under Phase II. Your main support will be derived, of course, from the major units in the precinct. BCDC will furnish numerical data on spaces used by primary and secondary units in your precinct and make available other data in their files; it will review and comment upon progress reports and it will help with final preparation of tables, graphics, sketches for interior modification proposals, and text of the final report as needed to ensure uniform formats for all precincts. DOFM may be called upon to amplify on the comments included in the Phase I report in matters under their jurisdiction, and may be consulted for reactions to specific building-related technical issues. The Campus Planning Study Group under the direction of Dean Richard Bender would react to your suggestions or specific proposals for space additions and alterations. CEQC is the group to consult on matters involving open space on campus. If deemed necessary for your work, you may refer specific questions to the chairs of task forces currently studying various support activities that cut across academic precincts. Similarly, you may refer questions on long range academic planning to the Provost and questions on short range academic planning to the Budget and Planning Office. A list of task forces is available from BCDC for acade-

mically related support activities and from Dorothy Walker for nonacademically related support activities.

I want to conclude by saying how important the above tasks are. It is intended that the final report of your task force will be included as part of the Campus Space Plan, and will form the basis for the elaboration of a Long Range Development Plan for the campus. Our campus now has the opportunity to present the case to the State and other funding agencies for justified improvements to our facilities. What we propose must be as strongly supported as possible, should be based on a thorough assessment of what we now have, and should consider a range of possible solutions to ensure that what we finally propose is the best realistic plan for meeting the needs of our programs. I am very appreciative of your willingness to accept the responsibility for seeing that this important aspect of campus space planning gets the attention it deserves."

After the appointment of the chairperson and members of the Phase II task force for a specific academic precinct, the chairperson issues instructions to the unit representatives amplifying on the Vice Chancellor's charge to the task force chair. As mentioned earlier, primary units are selected along disciplinary lines. Each unit's representative drafts a report for the unit's needs as perceived by the unit. Several meetings of the task force are held to exchange views on the contents of the individual unit reports. The chairperson, with the assistance of a core committee and staff, drafts a summary precinct report with recommendations, which are circulated and discussed by all units prior to submission to BCDC for processing.

The work of the Phase II task forces in academic precincts has resulted in five reports filed in 1981 as part of the Campus Space Plan. Edited extracts from these reports are included in the section of the present document entitled "Academic Resources and Needs Survey."

Table 2

CAMPUS SPACE RESOURCES SURVEY:  
CENTRAL CAMPUS BUILDING LIST

SUPPORT ACTIVITIES

Academically Related

1. Libraries
  1. Doe Library
  2. Moffitt Library
2. Museums, Exhibits and Special Collections
3. Animal Care Facilities
4. Classrooms and General Facilities
  1. Zellerbach Hall
  2. Alumni House
  3. Sather Tower
  4. The Faculty Club
  5. Senior Men's Hall
  6. Women's Faculty Club
  7. Greek Theater
5. Computing Facilities
  - Campbell Annex
  - Campbell Hall Trailer
  - Minor Hall Trailers

Non-Directly Related to Academic Pursuits

6. Student Activities and Services
  1. Sproul Hall
  2. Student Union
  3. Cafeteria Building
  4. Eshleman Hall
  5. Girton Hall
  6. T-5
  7. T-6
  8. T-8
  9. T-9
    - [ Bechtel Engineering Center]
    - [ Stephens Hall]
    - [ Cowell Memorial Hospital]
7. Athletics and Recreational Sports
  1. Hearst Gymnasium
  2. Harmon Gymnasium
  3. Handball Courts
  4. Edwards Field Bleachers
  5. California Memorial Stadium
  6. Haas Clubhouse
    - [ Kleeberger Restrooms ]
8. Administration and Public Service
  1. California Hall
  2. Architects & Engineers Building
  3. 2220 Bancroft
  4. 2223 Fulton
  5. 2120 Oxford
    - [ University Hall ]
    - [ Parking Structure U ]
9. Campus Landscape, Open Space, Vehicular Circulation and Parking
  1. Campus Garage
    - [ Parking Structures A, B, H, U]
    - [ East and West Kiosks ]

Deferred

10. Food Services
  - [Cafeteria Building]
11. Basic Utilities
  1. Central Heating Plant
    - [Steam Tunnel]
    - [Substations 1, 2 and 3]
12. Student and Faculty Housing
  1. University House
  2. Stern Hall
  3. Bowles Hall
  4. International House
  5. Manville Hall
    - [Oxford Tract Buildings]
13. Periphery and Satellite Facilities

Note: A report on each building on or immediately adjacent to the central campus will be included in one of the support activity studies as shown above. In some cases (e.g., Cafeteria Building) a building may also be considered in further detail in another study. Additionally, some facilities are judged unworthy of individual reports but will receive mention. Square brackets identify these two latter situations.

#### PROCEDURE FOR WORK OF SUPPORT ACTIVITIES TASK FORCES

As mentioned earlier, of the thirteen support activities slated for study, the work on four of them has been deferred for future study. Of the remaining nine included in the current work, five are academically related and within purview of the work directed by BCDC, while four non-academically related support activities have been under the direction of Campus Coordinator Dorothy Walker and DOFM. For each of the support activities, the work under Phase I (Survey of Space Resources) and Phase II (in-depth study and recommendations) has been entrusted in all cases to a single task force.

With respect to academically related support activities, the first step in the process is the appointment of a chairperson to head the combined Phase I - Phase II effort for a particular support activity. Appointment of members to the task force follows, and these members conduct the survey with assistance from BCDC, DOFM and staff from the units involved in the activity. The survey portion of their work follows the pattern established for the survey of academic and research units under Phase I described earlier. The Phase II portion of their work involves report preparation by the units surveyed and by members of the task force, discussion meetings, progress reports and a final report prepared by the chairperson with assistance and concurrence of members of the task force.

A similar procedure is followed in the work of the non-academically related support activities task forces, except that overall organization for their work lies primarily with Vice Chancellor Kerley, DOFM, and Dorothy Walker.

The work of all nine support activities task forces is in progress, and a progress report on this work is included in the section of the present document entitled "Support Activities."

#### PROCEDURE FOR PROJECT SELECTION FOR THE BERKELEY CAMPUS SPACE PLAN

Following completion of Phases I and II for the five academic precincts, and of the progress reports of the nine support activities task forces, an analysis has been conducted of current space utilization, of existing space quality, and of projected needs. The objective of the analysis is to formulate a Campus Space Plan for the Berkeley campus, by establishing criteria to be used for the selection of strategies and projects as part of the Plan.

The work then proceeds with the identification of major capital improvement projects as candidates for inclusion in the 1981 Berkeley Campus Space Plan.

Details of the criteria established and of the projects selected are included in the section of the present document entitled "The Berkeley Campus Space Plan."

# Space Resources and Needs Survey

# Space Distribution

## SPACE DISTRIBUTION ON CAMPUS

The official facilities inventory for the Berkeley campus shows a total of 6,846,514 assignable square feet (ASF) of space available as of Fall 1980. (This figure is exclusive of a number of distant field stations serving the campus throughout the State.) Subtracting the campus' 1,266,888 ASF of residential space (mostly dormitories) leaves 5,579,626 ASF. Of this nonresidential space, 2,507,920 ASF, or 45%, is assigned directly to Departments of Instruction and Research (including most Deans' offices and all classroom space). The rest of the space is used for Organized Research Units (16%), academic support such as libraries and assembly halls (18%), student services (5%), and a variety of other activities (16%) including general institutional services (such as administration), public service, and organized activities (such as the Optometry Clinic). A breakdown of this space is shown in the table on page 50.

A comparison of the physical growth of the campus with the growth of student enrollments is instructive. The table below shows campus space (measured in outside gross square feet, OGSF) plotted against campus enrollments (number of students) from 1873, when South Hall was completed, to a projection to the year 2000. Spurts of physical growth resulting from a 1914 bond issue, the acquisition of temporary buildings after World War II, and the availability of funds from the Higher Education Facilities Act in the 1960s are clearly visible, as are the enrollment effects of the World Wars. The graph has been normalized to bring the two lines together at the year 2000 with a ratio of 300 OGSF per student (roughly 180 ASF per student). Though enrollments and space both show a generally similar overall trend, this norm of 300 OGSF per student has not been achieved since the 1890s, except for the brief period during World War II when campus enrollments plummeted.

We are presently well under this somewhat arbitrary norm, and the fact that we are

may partly explain the overcrowding experienced in many units on campus and the need for additional space expressed by them. The graph shows that the norm may be reached by the year 2000 by a combination of reduced enrollment from the present enrollment of over 30,000 to a targeted goal of 29,000 students and a net increase in OGSF produced by new construction in excess of projected demolition on the order of 1,100,000 OGSF.

Most, though not all, of the Instruction and Research space is known as "capacity" space - space to which the official Restudy standards are applied. About 38% of the campus' nonresidential space, or 31% of its total space, may be compared with these standards.

Several points need to be considered when using the Restudy standards to measure the adequacy of campus space. First, they were intended to apply to only a portion of the activities carried out on a university campus. The majority of campus space is included within the standards, which therefore cannot indicate deficiencies in areas such as academic support, organized research, student services and administration. Secondly, the original Restudy standards, developed in 1955 in an attempt to establish reasonable guidelines for the measurement of space utilization and the evaluation of capital building requests, covered all of California higher education. The study done at that time was statistical in nature, and the lack of a specific justification or activity study, especially for laboratory-oriented disciplines, makes an assessment of the standards particularly difficult. The revision of the standards in 1966 asserted the need for flexibility and continued revision of the research laboratory guidelines, but basically restated them. The only change since then has been a tightening of the utilization rates for instructional rooms.

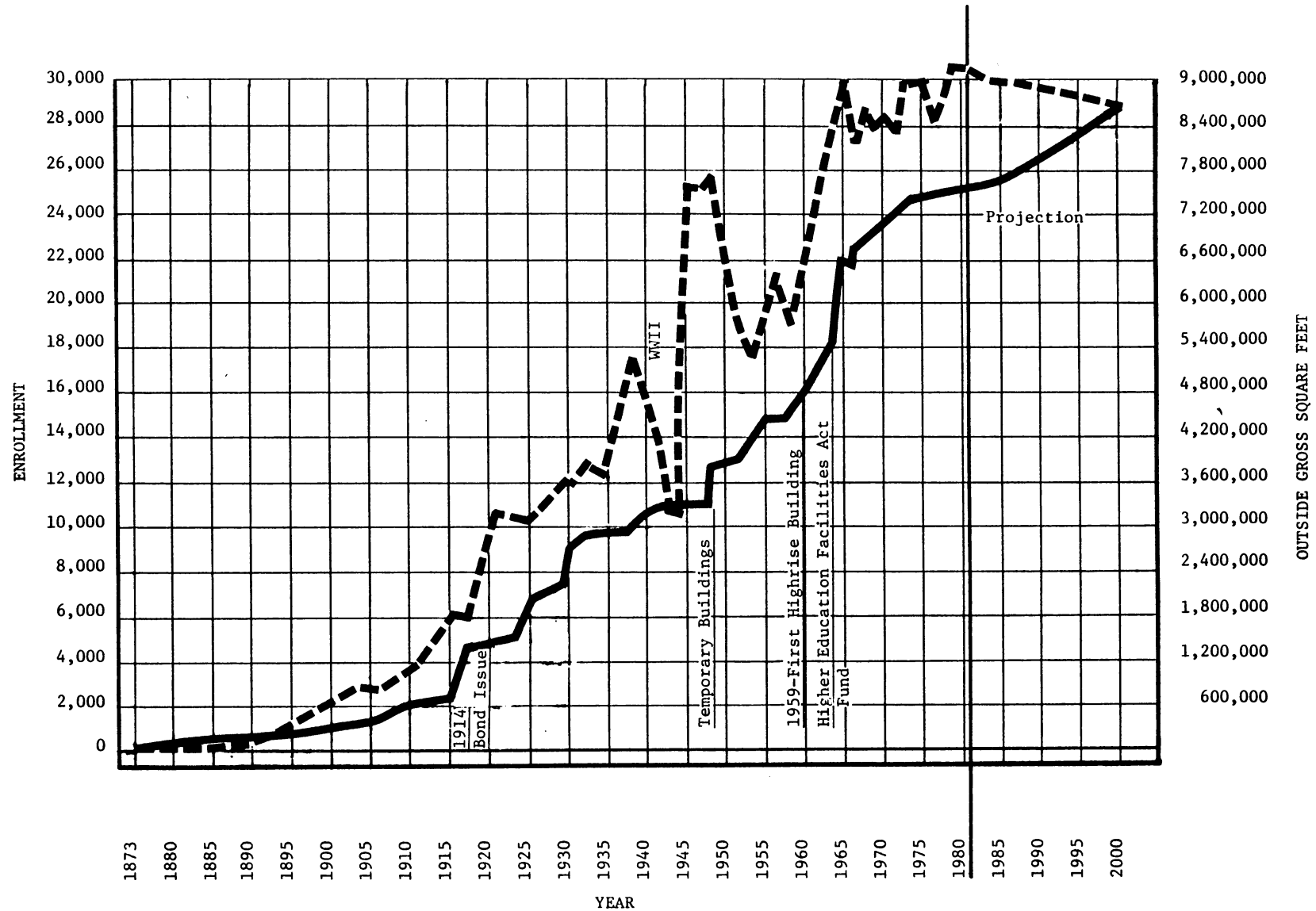
During the intervening years since the standards were developed, basic changes have taken place in many disciplines which have had a significant impact on require-

ments for space. This is particularly true of laboratory-oriented disciplines. The biological sciences have become far more equipment-oriented, and the need for space for special laboratory service rooms, support facilities, and additional bench space for instrumentation and technical personnel has grown tremendously. The mathematical sciences need class laboratories, particularly in Statistics, but the Restudy standards include no allowance for teaching labs in this discipline. Chemists also have a far greater need for equipment; in addition, work with increasingly exotic, reactive and hazardous substances, as well as an awareness of hazards previously unrecognized, necessitates many more fume hoods, glove boxes and other space-consuming items.

In summary, though the Restudy standards can provide a valuable benchmark for comparison of space allocations among similar departments, and while they are often reliable in the nonlaboratory disciplines, uncritical application of them to subject fields where programs or techniques have undergone change can be very misleading.

A comparison of the space available for Instruction and Research programs as compared with the Restudy allowances is provided in an excerpt from "Table P-N, Adequacy of Assignable Areas Related to Restudy/CCHE Standards for I & R Departments." This table is a part of the "Capacity Tables" prepared each year by the campus for submission to the State. It indicates that overall, the campus is only a few percentage points below adequacy with a shortage of approximately 50,000 ASF. Though in a number of individual disciplines the Restudy percentages are valid indicators of space adequacy, they are particularly misleading in the biological and physical sciences, and the total adequacy is actually less than it would appear to be. Individual disciplines are discussed in the later section on "The Berkeley Campus Space Plan."

BERKELEY CAMPUS  
Outside Gross Square Feet and Enrollments



--- Student Enrollments  
— Outside Gross Square Feet

The enrollment figures used as a basis for this chart are head count figures for the Fall Quarter. The areas are outside gross square feet of central campus buildings, excluding residence halls and outlying areas such as the Richmond Field Station.

UNIVERSITY OF CALIFORNIA 1982-85 CAPITAL IMPROVEMENT PROGRAM

TABLE P-N, ADEQUACY OF ASSIGNABLE AREAS RELATED TO RESTUDY/CCHE STANDARDS FOR I & R DEPARTMENTS

BERKELEY

| PROGRAM CODE AND NAME |     |                       |                       | 1980-81 | 1981-82 | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 | 1987-88 |
|-----------------------|-----|-----------------------|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1102                  | I&R | Biological Sciences   | Actual                | 245,886 | 245,886 | 245,886 | 246,916 | 254,016 | 254,016 | 254,016 | 254,016 |
|                       |     |                       | Needed                | 191,412 | 191,294 | 192,202 | 192,202 | 192,202 | 192,202 | 192,202 | 192,202 |
|                       |     |                       | Actual as % of Needed | 128     | 129     | 128     | 128     | 132     | 132     | 132     | 132     |
| 1103                  | I&R | Agricultural Sciences | Actual                | 186,649 | 186,799 | 187,519 | 187,519 | 187,519 | 187,519 | 187,519 | 187,519 |
|                       |     |                       | Needed                | 200,554 | 192,842 | 193,191 | 193,191 | 193,191 | 193,191 | 193,191 | 193,191 |
|                       |     |                       | Actual as % of Needed | 93      | 97      | 97      | 97      | 97      | 97      | 97      | 97      |
| 1104                  | I&R | Mathematical Sciences | Actual                | 74,074  | 74,074  | 74,074  | 74,074  | 74,074  | 74,074  | 74,074  | 74,074  |
|                       |     |                       | Needed                | 40,564  | 40,199  | 40,231  | 40,231  | 40,231  | 40,231  | 40,231  | 40,231  |
|                       |     |                       | Actual as % of Needed | 183     | 184     | 184     | 184     | 184     | 184     | 184     | 184     |
| 1106                  | I&R | Physical Sciences     | Actual                | 352,343 | 353,875 | 352,543 | 352,543 | 352,543 | 352,543 | 352,543 | 352,543 |
|                       |     |                       | Needed                | 280,631 | 283,198 | 283,202 | 283,202 | 283,202 | 283,202 | 283,202 | 283,202 |
|                       |     |                       | Actual as % of Needed | 126     | 125     | 124     | 124     | 124     | 124     | 124     | 124     |
| 1107                  | I&R | Engineering Sciences  | Actual                | 482,248 | 481,917 | 483,418 | 483,418 | 484,309 | 484,309 | 484,309 | 484,309 |
|                       |     |                       | Needed                | 613,770 | 613,355 | 611,972 | 611,972 | 611,972 | 611,972 | 611,972 | 611,972 |
|                       |     |                       | Actual as % of Needed | 78      | 79      | 79      | 79      | 79      | 79      | 79      | 79      |
| 1108                  | I&R | Psychology            | Actual                | 59,403  | 59,403  | 59,403  | 59,403  | 59,403  | 59,403  | 59,403  | 59,403  |
|                       |     |                       | Needed                | 48,188  | 47,333  | 47,136  | 47,136  | 47,136  | 47,136  | 47,136  | 47,136  |
|                       |     |                       | Actual as % of Needed | 123     | 126     | 126     | 126     | 126     | 126     | 126     | 126     |
| 1109                  | I&R | Social Sciences       | Actual                | 129,562 | 129,562 | 129,562 | 129,562 | 129,562 | 129,562 | 129,562 | 129,562 |
|                       |     |                       | Needed                | 149,606 | 146,943 | 146,603 | 146,603 | 146,603 | 146,603 | 146,603 | 146,603 |
|                       |     |                       | Actual as % of Needed | 87      | 88      | 88      | 88      | 88      | 88      | 88      | 88      |
| 1110                  | I&R | Arts                  | Actual                | 79,364  | 79,364  | 79,364  | 79,364  | 79,364  | 79,364  | 79,364  | 79,364  |
|                       |     |                       | Needed                | 90,200  | 91,364  | 88,546  | 88,546  | 88,546  | 88,546  | 88,546  | 88,546  |
|                       |     |                       | Actual as % of Needed | 88      | 87      | 90      | 90      | 90      | 90      | 90      | 90      |
| 1111                  | I&R | Letters               | Actual                | 46,381  | 46,381  | 46,381  | 46,381  | 46,381  | 46,381  | 46,381  | 46,381  |
|                       |     |                       | Needed                | 47,288  | 48,670  | 48,670  | 48,670  | 48,670  | 48,670  | 48,670  | 48,670  |
|                       |     |                       | Actual as % of Needed | 98      | 95      | 95      | 95      | 95      | 95      | 95      | 95      |
| 1112                  | I&R | Foreign Languages     | Actual                | 42,559  | 42,559  | 42,559  | 42,559  | 42,559  | 42,559  | 42,559  | 42,559  |
|                       |     |                       | Needed                | 53,146  | 52,995  | 52,900  | 52,900  | 52,900  | 52,900  | 52,900  | 52,900  |
|                       |     |                       | Actual as % of Needed | 80      | 80      | 80      | 80      | 80      | 80      | 80      | 80      |
| 1114                  | I&R | Interdisc Studies     | Actual                | 6,416   | 6,416   | 6,416   | 6,416   | 6,416   | 6,416   | 6,416   | 6,416   |
|                       |     |                       | Needed                | 10,908  | 7,047   | 7,040   | 7,040   | 7,040   | 7,040   | 7,040   | 7,040   |
|                       |     |                       | Actual as % of Needed | 59      | 91      | 91      | 91      | 91      | 91      | 91      | 91      |

UNIVERSITY OF CALIFORNIA 1982-85 CAPITAL IMPROVEMENT PROGRAM

TABLE P-N, ADEQUACY OF ASSIGNABLE AREAS RELATED TO RESTUDY/CCHE STANDARDS FOR I & R DEPARTMENTS

| PROGRAM CODE AND NAME |     |                         |                       | 1980-81   | 1981-82   | 1982-83   | 1983-84   | 1984-85   | 1985-86   | 1986-87   | 1987-88 |
|-----------------------|-----|-------------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| 1201                  | I&R | Administrative Sciences | Actual                | 46,886    | 46,886    | 46,886    | 46,886    | 46,886    | 46,886    | 46,886    | 46,886  |
|                       |     |                         | Needed                | 60,070    | 64,287    | 64,292    | 64,292    | 64,292    | 64,292    | 64,292    | 64,292  |
|                       |     |                         | Actual as % of Needed | 78        | 73        | 73        | 73        | 73        | 73        | 73        | 73      |
| 1202                  | I&R | Education               | Actual                | 45,340    | 45,340    | 45,340    | 45,340    | 45,340    | 45,340    | 45,340    | 45,340  |
|                       |     |                         | Needed                | 44,540    | 42,325    | 41,874    | 41,874    | 41,874    | 41,874    | 41,874    | 41,874  |
|                       |     |                         | Actual as % of Needed | 102       | 107       | 108       | 108       | 108       | 108       | 108       | 108     |
| 1203                  | I&R | Environmental Design    | Actual                | 113,774   | 116,927   | 118,417   | 118,417   | 118,245   | 118,245   | 118,245   | 118,245 |
|                       |     |                         | Needed                | 133,569   | 131,285   | 128,778   | 128,778   | 128,778   | 128,778   | 128,778   | 128,778 |
|                       |     |                         | Actual as % of Needed | 85        | 89        | 92        | 92        | 92        | 92        | 92        | 92      |
| 1205                  | I&R | Law                     | Actual                | 26,871    | 26,871    | 26,871    | 26,871    | 26,871    | 26,871    | 26,871    | 26,871  |
|                       |     |                         | Needed                | 52,093    | 51,336    | 51,765    | 51,765    | 51,765    | 51,765    | 51,765    | 51,765  |
|                       |     |                         | Actual as % of Needed | 52        | 52        | 52        | 52        | 52        | 52        | 52        | 52      |
| 1206                  | I&R | Social Work             | Actual                | 13,885    | 13,885    | 13,885    | 13,885    | 13,885    | 13,885    | 13,885    | 13,885  |
|                       |     |                         | Needed                | 14,518    | 14,354    | 14,415    | 14,415    | 14,415    | 14,415    | 14,415    | 14,415  |
|                       |     |                         | Actual as % of Needed | 96        | 97        | 96        | 96        | 96        | 96        | 96        | 96      |
| 1208                  | I&R | Journalism              | Actual                | 8,419     | 8,419     | 8,419     | 8,419     | 8,419     | 8,419     | 8,419     | 8,419   |
|                       |     |                         | Needed                | 9,569     | 9,424     | 9,657     | 9,657     | 9,657     | 9,657     | 9,657     | 9,657   |
|                       |     |                         | Actual as % of Needed | 88        | 89        | 87        | 87        | 87        | 87        | 87        | 87      |
| 1209                  | I&R | Library Science         | Actual                | 11,968    | 11,968    | 11,968    | 11,968    | 11,968    | 11,968    | 11,968    | 11,968  |
|                       |     |                         | Needed                | 14,683    | 15,479    | 15,443    | 15,443    | 15,443    | 15,443    | 15,443    | 15,443  |
|                       |     |                         | Actual as % of Needed | 82        | 77        | 77        | 77        | 77        | 77        | 77        | 77      |
| 1190                  | I&R | Class & Seminar Rooms   | Actual                | 177,465   | 177,465   | 177,465   | 177,465   | 177,465   | 177,465   | 177,465   | 177,465 |
|                       |     |                         | Needed                | 158,664   | 158,456   | 156,956   | 156,956   | 156,956   | 156,956   | 156,956   | 156,956 |
|                       |     |                         | Actual as % of Needed | 112       | 112       | 113       | 113       | 113       | 113       | 113       | 113     |
| CAMPUS I & R TOTAL    |     |                         | Actual                | 2,149,493 | 2,153,997 | 2,156,376 | 2,157,406 | 2,165,225 | 2,165,225 | 2,165,225 |         |
|                       |     |                         | Needed                | 2,212,897 | 2,201,811 | 2,193,868 | 2,193,868 | 2,193,868 | 2,193,868 | 2,193,868 |         |
|                       |     |                         | Actual as % of Needed | 97        | 98        | 98        | 98        | 99        | 99        | 99        | 99      |

BERKELEY GENERAL CAMPUS SPACE BY PROGRAM CODE

(Fall 1980)

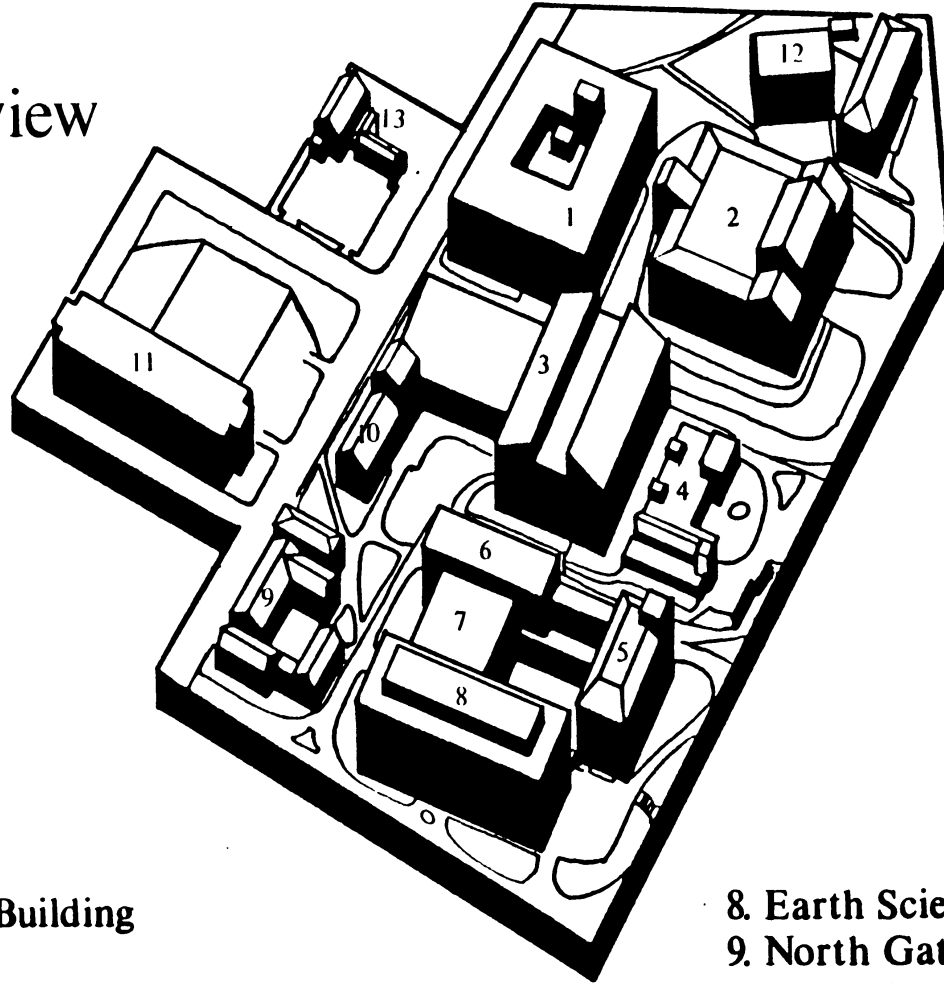
| <u>PROGRAM</u>                     | <u>ASF</u> | <u>PROGRAM</u>                       | <u>ASF</u> |
|------------------------------------|------------|--------------------------------------|------------|
| 1. INSTRUCTION & RESEARCH          |            | 6. STUDENT SERVICES                  |            |
| 1.1 General Subject Fields         | 2,129,821  | 6.1 Placement                        | 11,877     |
| 1.2 Professional Subject Fields    | 273,107    | 6.2 Student Health Service           | 43,758     |
| 1.3 Health Science Subject Fields  | 104,992    | 6.3 Student Recreation Service       | 53,549     |
| Total                              | 2,507,920  | 6.4 Counseling                       | 10,367     |
|                                    |            | 6.5 Student Activities               | 79,584     |
| 2. ORGANIZED RESEARCH UNITS        |            | 6.6 Student Financial Aid            | 10,144     |
| 2.1 General Subject Fields         | 884,750    | 6.7 Administration                   | 47,431     |
| 2.2 Professional Subject Fields    | 29,865     | 6.8 Student Service-Miscellaneous    | 1,851      |
| Total                              | 914,615    | 6.9 Commercial Service               | 35,127     |
|                                    |            | Total                                | 293,688    |
| 3. ORGANIZED ACTIVITY UNITS        |            | 7. INSTITUTIONAL SERVICES            |            |
| 3.1 General Subject Fields         | 22,241     | 7.1 Logistical Services              | 92,018     |
| 3.2 Professional Subject Fields    | 3,042      | 7.2 General Services                 | 445,655    |
| 3.3 Health Science Subject Fields  | 17,237     | 7.3 Central Administration           | 1,958      |
| Total                              | 42,520     | 7.4 Campus Administration            | 87,212     |
|                                    |            | 7.5 Financial & Personnel Operations | 46,258     |
| 4. PUBLIC SERVICE                  |            | Total                                | 673,101    |
| 4.1 General                        | 5,353      | 8. NON-INSTITUTIONAL AGENCY          | 67,118     |
| 4.2 UC Extension                   | 43,923     |                                      |            |
| 4.3 CO-OP Extension                | 41,444     |                                      |            |
| Total                              | 90,720     |                                      |            |
|                                    |            | GRAND TOTAL                          | 5,579,626  |
| 5. ACADEMIC SUPPORT                |            | (Excludes Residential Space)         |            |
| 5.1 Libraries                      | 661,732    |                                      |            |
| 5.2 Cultural Centers               | 167,554    |                                      |            |
| 5.3 Instructional Resource Centers | 65,095     |                                      |            |
| 5.4 Computing Support              | 34,527     |                                      |            |
| 5.5 Vivaria                        | 31,713     |                                      |            |
| 5.6 Academic Administration        | 29,323     |                                      |            |
| Total                              | 989,944    |                                      |            |

# Academic Precinct Studies

## Phase I and Phase II

# Engineering and Earth Sciences

## Phase I Precinct 1 Overview



- 1. Cory Hall
- 2. Hearst Memorial Mining Building
- 3. Davis Hall
- 4. Bechtel Engineering Center
- 5. McLaughlin Hall
- 6. O'Brien Hall
- 7. Hesse Hall

- 8. Earth Sciences Building
- 9. North Gate Hall
- 10. Naval Architecture Building
- 11. Etcheverry Hall
- 12. Donner Laboratory
- 13. 2607 Hearst

## PHASE I - SURVEY

### PRECINCT I OVERVIEW

#### Engineering and Earth Sciences

##### Buildings and Landscape

The Engineering and Earth Sciences precinct of the Berkeley campus is located at the northeast corner of the central campus. Except for Etcheverry Hall and 2607 Hearst across Hearst Avenue to the north, the precinct is bounded by Hearst Avenue on the north, Gayley Road on the east, North Gate path and Observatory Hill on the west and the T Buildings, Evans Hall, the Mining Circle and Stanley Hall on the south.

At the core of the precinct is a group of four engineering buildings: Cory Hall housing Electrical Engineering and Computer Sciences and the Electronics Research Laboratory, Hearst Memorial Mining Building housing Materials Science and Mineral Engineering and the Office of Research Services, Davis Hall housing Civil Engineering, and the Bechtel Engineering Center housing the Engineering Library, student societies, general use meeting and eating facilities and the Interdisciplinary Studies Program.

In the southwest corner of the precinct is a major cluster of four buildings enclosing a central courtyard: McLaughlin Hall housing Transportation (Civil) Engineering, the Institute of Transportation Studies and the Office of the Dean, O'Brien Hall housing Hydraulic and Coastal (Civil) Engineering, Hesse Hall housing Mechanical Engineering, and the Earth Sciences Building housing Paleontology, the Paleontology Museum, Geology and Geophysics, Geography, the Seismographic Stations and the Earth Sciences Library. In what would be the precinct's northwest corner, were it not for the two buildings across Hearst Avenue north of the campus proper, is a more rustic, woody area with two brown shingle buildings: North Gate Hall, presently housing the Development Office and Water

Resources Center Archives and planned for the Graduate School of Journalism, and the Naval Architecture Building, which houses Naval Architecture and Offshore Engineering.

Besides these three groupings of buildings are somewhat isolated structures at the edges of the precinct, only one of which has a disciplinary connection with Engineering. Etcheverry Hall, across Hearst Avenue from North Gate and Naval Architecture, houses Nuclear Engineering, Mechanical Engineering, Industrial Engineering and Operations Research, and the Operations Research Center. 2607 Hearst, east of Etcheverry Hall opposite Cory Hall, has no programmatic relationship with the major disciplines of the precinct, housing the Graduate School of Public Policy. Similarly, Donner Laboratory, in the southeast corner of the precinct, is not programmatically related to the other precinct buildings; it houses Biophysics and Medical Physics and LBL's Biology and Medicine Division.

At the northeast corner of Hearst Mining are two small metal structures on either side of an entrance to a mine shaft, the Lawson Adit. The larger, two story structure to the north now houses a small shop and storage for a Molecular Biology faculty member's research and the building to the south contains Materials Science and Mineral Engineering storage and mechanical equipment connected to the adit. Both structures were once associated with the adit, originally built in 1916 for mining instruction and used today for both teaching and research in several disciplines. The part of the tunnel in use today extends eastward about 260 feet, passing under Donner Lab. The entire tunnel is nearly 1,000 feet long and veers slightly to the north just east of Gayley Road passing under Stern Hall and extending well into the hillside, but much of it is unsafe and closed owing to soil instability.

Architecturally the precinct is quite diverse, featuring the monumentality of the fine neoclassical Hearst Mining Build-

ing and the rustic simplicity of brown shingle buildings like North Gate Hall and Naval Architecture. These three fine buildings share the distinction of having been nominated as a California State Landmark and for inclusion in the National Register of Historic Places, with the Naval Architecture Building actually on the Register. A number of undistinguished buildings such as Cory, O'Brien and Earth Sciences dominate the site, lending a singularly undistinguished character to the precinct as compared with the central portion of the campus. The new Bechtel Engineering Center is a welcome addition to the area and with its roof deck serves primarily as an active, central open space.

The precinct is built on the steepest topography of the central campus. The high point at Founder's Rock is 83 feet above the low point south of Earth Sciences. Numerous steps have been built to link pedestrian areas. A few significant views are afforded towards the lower south and west portions of the campus. However, many potentially fine views have been blocked by the bulk of Evans Hall and the Earth Sciences Building.

The most notable landmark in the precinct is Founder's Rock at the campus' northeastern corner of Gayley Road and Hearst Avenue. This historic feature has both campus-wide and State-wide significance as the place where the founders of the College of California first met in 1860 to select the site for what was to become the University of California.

The landscape is composed primarily of leftover space between the densely packed buildings and lacks both coherence and a sense of spaciousness. The spaces are primarily linear strips and serve as circulation corridors. A recognizable strength of landscape character is absent except for the area east of Cory near Founders' Rock and the space between Naval Architecture, North Gate and O'Brien where a dry Mediterranean character is developed by the groves of mature eucalyptus trees. A small redwood grove near Earth Sciences

forms a pleasant transition to the natural area of Observatory Hill and softens the impact of that towering building. All other planted spaces are disjointed and unrelated visually, having been developed piecemeal as each building was completed. Even the planting of the Bechtel Center lacks a distinctive character and bears little relationship to the adjacent campus landscape.

With the notable exception of the Bechtel Center the outdoor spaces lack amenities for the large population of students, faculty and staff. Only one public telephone exists in the area, hidden on a connecting terrace between Cory and Davis Halls. Lack of comfortable seating is a major deficiency despite the presence of a number of terraces and small plazas which have a warm, southerly exposure. The snack bar on the Bechtel roof deck provides the only eating facility in this precinct, although a variety of restaurants are available off the campus in the Hearst and Euclid Avenues area.

Four concealed courtyards provide relatively private areas for seven of the precinct's buildings. Two are cold, uncomfortable and rarely used -- the Cory Hall courtyard and the paved space and roof deck between O'Brien, McLaughlin and Earth Sciences. Two smaller courtyards at North Gate Hall and Donner Laboratory are delightful spaces which are run-down, needing rehabilitation to fulfill their potentials as usable spaces.

#### Circulation

The precinct is well served by public or university transportation. AC transit and the LBL shuttle bus stop at Cory Hall; Humphrey Go-BART stops at the Mining Circle.

Automobile parking within the precinct is extremely limited because of the lack of space and the hilly terrain. Two large UC parking structures accommodating 798 cars are located nearby on Hearst Avenue. Etcheverry Hall has adequate parking in two surface lots.

Provisions for adequate bicycle parking are lacking. The bulky, unattractive concrete bike holders are seldom used and add clutter to the areas in which they are found. Trees, posts and railings are often used instead as bike "lockers."

Service access to buildings is difficult and necessitates the use of pedestrian pathways, creating unpleasant intrusions into the limited landscape spaces. Considerable congestion occurs at places such as the Cory-Hearst Mining service area and the crude parking lot west of North Gate Hall.

The Cory-Hearst Mining corridor is particularly unattractive and cluttered with outdoor storage, two dilapidated metal sheds and a small parking lot. Electrical Substation 2 is located at the northwestern corner of Hearst Mining. The adjacent electrical equipment is partly hidden by ivy, but two storage areas which contain cables, canisters and old equipment are visible and ugly. The entrance to the mining tunnel, the Lawson Adit, penetrates the hill across from the northeastern corner of Hearst Mining. Two old metal sheds originally built in connection with mine operations straddle the mine's entrance. These structures and a nearby outdoor storage area are eyesores.

Pedestrian circulation routes tend to be ambiguous and disconnected. Of five access points onto the precinct, three are relatively clear: Founders' Rock, the path between Cory and Davis, and North Gate at Euclid Avenue. The area west of North Gate Hall is under study, the objective being to provide a functional, dignified north entrance to the campus. No pedestrian connection exists from Etcheverry Hall to Naval Architecture. The possibility of a tunnel or bridge connection should be considered. Similarly, there is no crosswalk to connect to the stairs between Donner Lab and Stanley Hall. Because of the terrain and the necessity for stairs, accessibility for handicapped persons within the precinct is very difficult.

#### Space Occupancy

Seven of the precinct's buildings contain general assignment classrooms (one of these, in Hearst Mining, has been closed for seismic safety reasons), and four of the buildings house LBL-funded activities. For the most part the I & R departments are contained entirely within the precinct. The most notable exception is Electrical Engineering and Computer Sciences; its Computer Science Division is located just south of the precinct on the fourth and fifth floors of Evans Hall. In addition, the Geography Department has been assigned some graduate student office space in Building T-5. Also, several engineering units and the Geology and Geophysics Department are assigned additional space, largely for storage, at the Richmond Field Station and the Richmond Service and Storage Facility.

The precinct thus provides space for one professional college with seven formal departments, a professional school (two, once Journalism is relocated), four departments in the College of Letters and Science, seven Organized Research Units and two branches of the Library, in addition to general assignment classrooms and several service and administrative activities. Its thirteen buildings, plus the Lawson Adit and its two associated structures, contain approximately 666,000 assignable square feet (ASF) and 1,108,000 outside gross square feet (OGSF). This amounts to 16% of the central campus ASF and OGSF.

The precinct covers roughly 9.5% of the central campus area. Together with the adjacent Mathematics and Physical Sciences precinct, it forms the densest and most populous corner in the campus. Nearly half of this precinct's land is covered with buildings as compared with an average of 20% for the central campus. Of the remaining unbuilt space, about half is paved for parking, circulation and service access, leaving only about 25% in planted open space. The precinct, therefore, presents a very urban image.

T a b l e 1  
E n g i n e e r i n g   a n d   E a r t h   S c i e n c e s   P r e c i n c t  
COMPARISON OF ACTUAL INSTRUCTION AND RESEARCH SPACE WITH RESTUDY ALLOWANCES

| <u>Discipline</u>        | -1-<br>Std. ASF<br>Under<br>Restudy (f) | -2-<br>Actual<br>Std. ASF<br>Within<br>Precinct (g) | -3-<br>Actual<br>Std. ASF<br>Outside<br>Precinct (g) | -4-<br>Actual<br>Nonstandard<br>ASF (g) | -5-<br>Actual Std. ASF<br>as Percent of<br>Restudy Std. ASF<br>$[(2 + 3) \div 1] \times 100$ | -6-<br>Excess or Deficiency<br>of Actual ASF<br>vs. Restudy ASF<br>$(2 + 3 - 1)$ |
|--------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Engineering Sciences (a) | 564,694                                 | 413,606                                             | 31,202                                               | 5,257                                   | 79%                                                                                          | - 119,886                                                                        |
| Biological Sciences (b)  | 29,164                                  | 16,953                                              | 0                                                    | 273                                     | 58%                                                                                          | - 12,211                                                                         |
| Physical Sciences (c)    | 26,529                                  | 27,190                                              | 4,588                                                | 0                                       | 120%                                                                                         | + 5,249                                                                          |
| Social Sciences (d)      | 22,862                                  | 14,725                                              | 1,452                                                | 0                                       | 71%                                                                                          | - 6,685                                                                          |
| (Earth Sciences) (e)     | (54,243)                                | (45,696)                                            | (6,040)                                              | (0)                                     | (95%)                                                                                        | (- 2,507)                                                                        |
| Precinct Total           | 643,249                                 | 472,474                                             | 37,242                                               | 5,530                                   | 79%                                                                                          | - 133,533                                                                        |

(a) Includes Departments of Civil Engineering, Electrical Engineering and Computer Sciences, Industrial Engineering and Operations Research, Materials Science and Mineral Engineering, Mechanical Engineering, Naval Architecture and Offshore Engineering, and Nuclear Engineering, plus general Engineering, Interdisciplinary Studies Program and Office of the Dean activities.

(b) Includes Department of Biophysics and Medical Physics, and Paleontology.

(c) Includes Department of Geology and Geophysics.

(d) Includes Department of Geography and Graduate School of Public Policy.

(e) Includes Departments of Geography, Geology and Geophysics, and Paleontology. Parentheses indicate these figures are already included in the preceding Restudy disciplines of social, physical and biological sciences.

(f) Restudy standards date from 1955 and were revised in 1966. ASF (assignable square feet) is calculated using 1980-1981 year average workload data.

(g) Actual ASF is from Fall 1980 Facilities Data System (FDX).

T a b l e   2  
E n g i n e e r i n g   a n d   E a r t h   S c i e n c e s   P r e c i n c t  
S U M M A R Y   O F   B U I L D I N G S   R A T I N G S

| <u>Building</u>                    | <u>Age</u> <sup>1</sup> | <u>Program Suitability</u> <sup>2</sup> | <u>Fire and Life Safety</u> <sup>2</sup> | <u>Structural Safety</u> <sup>2, 3</sup> | <u>Utilities</u> <sup>2</sup> | <u>Accessibility</u> <sup>2</sup> | <u>Maintenance</u> <sup>2</sup> | <u>Building Average</u> |
|------------------------------------|-------------------------|-----------------------------------------|------------------------------------------|------------------------------------------|-------------------------------|-----------------------------------|---------------------------------|-------------------------|
| Cory                               | 3                       | 3                                       | 3                                        | 4 [446]                                  | 1                             | 2                                 | 2                               | 2.6                     |
| Hearst Mining <sup>4</sup>         | 1                       | 1                                       | 1                                        | 1 [30]                                   | 1                             | 2                                 | 2                               | 1.3                     |
| Davis                              | 3;5                     | 4                                       | 3                                        | 4;3 [98]                                 | 2                             | 2                                 | 2                               | 2.9                     |
| Bechtel Engineering                | 5                       | 5                                       | 4                                        | 5 [395]                                  | 4                             | 5                                 | 4                               | 4.6                     |
| McLaughlin                         | 2                       | 3                                       | 2                                        | 2 [389]                                  | 2                             | 2                                 | 2                               | 2.1                     |
| O'Brien                            | 4                       | 4                                       | 3                                        | 4 [569]                                  | 2                             | 3                                 | 3                               | 3.3                     |
| Hesse                              | 2;4                     | 2                                       | 2                                        | 3 [500]                                  | 2                             | 2                                 | 2                               | 2.3                     |
| Earth Sciences                     | 4                       | 3                                       | 2                                        | 2 [204]                                  | 1                             | 2                                 | 2                               | 2.3                     |
| North Gate <sup>4</sup>            | 1                       | 2                                       | 1                                        | 1;4 [565]                                | 1                             | 1                                 | 2                               | 1.5                     |
| Naval Architecture <sup>4, 5</sup> | 1                       | 2                                       | 1                                        | 1 [752]                                  | 2                             | 1                                 | 1                               | 1.3                     |
| Etcheverry                         | 4                       | 4                                       | 3                                        | 3 [419]                                  | 2                             | 2                                 | 2                               | 2.9                     |
| Donner                             | 3                       | 4                                       | 4                                        | 4 [456]                                  | 3                             | 2                                 | 2                               | 3.1                     |
| 2607 Hearst                        | 1                       | 5                                       | 1                                        | 3 [780]                                  | 3                             | 1                                 | 3                               | 2.4                     |
| Precinct Average                   | 2.8                     | 3.2                                     | 2.3                                      | 2.5                                      | 2.0                           | 2.1                               | 2.2                             | 2.5                     |

<sup>1</sup>Key: 1 = completed before 1921  
2 = completed 1921-1935  
3 = completed 1936-1950  
4 = completed 1951-1965  
5 = completed 1966 to present

<sup>2</sup>Key: 1 = very poor  
2 = poor  
3 = fair  
4 = good  
5 = very good

<sup>3</sup>Key: The bracketed number in the column to the right is the building's ranking from the Seismic Hazard Survey, State of California Buildings.

<sup>4</sup>Key: Building has been nominated as California State Landmark and for National Register of Historic Places.

<sup>5</sup>Key: Building is on National Register of Historic Places.

For an assessment of the adequacy of interior space in the precinct, it is necessary to consider the Restudy standards. The standards, originally published in 1955 and revised in 1966, are the official guidelines for measuring the adequacy of space assignments, in terms of amount, for the University's instruction and research (I&R) departments in the general and professional (i.e., excluding health sciences) fields. They are discipline averages which, except in a few special cases, cannot be applied easily to individual departments. Within most disciplines some departments will need less than the Restudy standards provide while some will require more, and only the aggregate of space in a discipline can be compared meaningfully with what the standards provide. This is especially true in laboratory disciplines such as engineering and physical sciences where physical requirements vary tremendously depending on the particular subfield.

Table 1 shows the space allowances generated under Restudy for the I & R departments housed in the Engineering and Earth Sciences precinct. Four different disciplines, and hence four sets of standards, are involved. Although Earth Sciences is not a conventional disciplinary grouping under Restudy, departments in this field have been shown together as well as under their official Restudy disciplines for informational purposes.

On the basis of these standards it is apparent that the Engineering and Earth Sciences precinct is very overcrowded, with an overall adequacy (percentage of actual space as compared with needed space) of 77%. The Restudy percentage for the earth sciences departments (particularly Geology and Geophysics, the physical sciences department) is misleadingly high, partly because the figures include inactive storage located some distance from the campus and partly because of programmatic deficiencies in the building (e.g., inadequate laboratories, poorly configured space). Exclusion of this storage space would reduce the percentages from 95% and 120% to 76% and 102% respectively.

Some of the most serious overcrowding can be found in Cory Hall, in the Earth Sciences Building and in Donner Laboratory. The situation will be improved in Donner Laboratory when some LBL activities are relocated following completion of a new building on the Hill now under construction, but no specific proposals for the other two buildings are in the campus' current capital improvement program. Projects which could be considered include a fifth floor addition to Cory, a fifth floor addition to O'Brien and an addition to Earth Sciences on the present site of Hesse Hall. Mechanical Engineering activities in the latter building would need to be relocated, possibly to an eastern addition to Etcheverry Hall.

#### Space Quality

The Restudy standards relate only to the amount of space and do not take into consideration its character or suitability for housed programs. Space becomes obsolescent owing to development of new or revised techniques, changes in faculty and faculty interests, and creation of new subfields of knowledge. In addition, new code requirements arise from greater awareness and understanding of environmental hazards and changing social needs, requiring modification of existing facilities. Hearst Mining and Hesse Hall, for example, are laboratory buildings which are woefully inadequate, in terms of utilities and laboratory fixtures, for the programs they house. Though North Gate Hall, Naval Architecture and McLaughlin Hall contain predominantly office space, these buildings also require extensive modernization of utilities, code corrections and general improvement of interior spaces.

In Table 2, the precinct's buildings are rated from one (very poor) to five (very good) in each of seven categories: age; program suitability; fire and life safety; structural safety; utilities; accessibility; and maintenance. Average ratings have been calculated for each building as well as for each category. The buildings fall roughly into four groups.

The Bechtel Engineering Center is in a class by itself. It has by far the highest average rating, between good and very good, as would be expected for a building just completed. Only relatively minor oversights need correction, and the ventilation requires adjustment.

O'Brien Hall, Donner Laboratory, Davis and Etcheverry Halls are rated fair. O'Brien requires heating and ventilation improvements and some interior remodeling. Donner Lab requires improved accessibility and better maintenance of its utility systems, but the move by LBL and subsequent planned alterations should reduce greatly the building's present overcrowding. Improvement to Davis Hall should focus on upgrading of the heating and ventilation system and better maintenance of the plumbing system and the elevators; some redesign and upgrading of spaces should also be considered. Etcheverry Hall similarly requires upgraded and repaired mechanical and utility systems as well as some remodeling to meet the occupants' present programmatic needs and to improve accessibility.

The next group of buildings, Cory Hall, 2607 Hearst, Earth Sciences, Hesse and McLaughlin Halls, vary from midway between fair and poor to poor. They are candidates for major upgrading. Two major capital improvements are already under way for Cory Hall and should improve the building's rating markedly, though overcrowding will remain a serious problem. 2607 Hearst has serious fire and life safety deficiencies and needs improved handicapped accessibility, but it is in much better condition than the precinct's other buildings of comparable age and is fairly well suited to its occupants' needs. The Earth Sciences Building needs relief from overcrowding and needs redesign, particularly of its laboratory spaces, to meet contemporary standards for teaching and research in the earth sciences. This building also requires major improvements to its utility systems, improved accessibility, and significant fire and life safety and seismic work. Hesse Hall is totally inadequate

programmatically and its laboratories require substantial upgrading. Major rehabilitation is also needed to provide improved fire and life safety, better accessibility and upgraded utilities; in addition, the roof should be rebuilt. An entirely rebuilt facility may be the most cost-effective solution. McLaughlin Hall is rated poor in every category. Its offices require extensive remodeling, the electrical, telephone and heating and ventilation systems need upgrading, and its fire and life safety, accessibility and seismic resistance must be improved.

By far the poorest buildings in the precinct are Hearst Mining, Naval Architecture and North Gate, all three of which are rated poor or very poor in every category. By coincidence, the three buildings are historically significant and should not be tampered with lightly. Every effort should be made to rehabilitate them for continued use without substantially altering their historically significant features. A project to improve code, heating and ventilation, and insulation deficiencies in North Gate Hall has been proposed by the campus. A similar project should be developed for the Naval Architecture Building. A proposed project to combine programmatic revitalization with seismic improvements for Hearst Mining has been held up pending decisions at the State level on a seismic policy. In the recent study, "Seismic Hazard Survey, State of California Buildings," Hearst Mining appears close to the top (ranked 30) of the list of candidates for seismic hazard correction, followed closely by Davis Hall and the Earth Sciences Building.

Overall, the ratings indicate the most serious technical problems in the precinct are poor utility systems (particularly ventilation), poor accessibility and inadequate maintenance. Given the campus' raison d'être as a great teaching and research institution, the numerous programmatic deficiencies must be ranked alongside these problems.

In every category, though, the average rating is less than fair. Overall, the precinct is rated 2.5, half way between poor and fair. In many cases, more detailed studies are needed to ascertain the causes of the deficiencies (particularly as regards programmatic deficiencies, malfunctioning utilities and seismic problems) and the best ways to correct them.

Concurrent with this, studies should be made of how best to improve certain key exterior spaces in the precinct, focusing particularly on redesign of the North Gate entrance to the campus and the three courtyard spaces associated with Donner Lab, Hesse Hall and North Gate Hall, possible removal of the ground floor portion of the O'Brien Hall bridge, removal of the temporary buildings and open storage near Hearst Mining Building, and an improved connection of Etcheverry Hall to the central campus.

#### Proposals

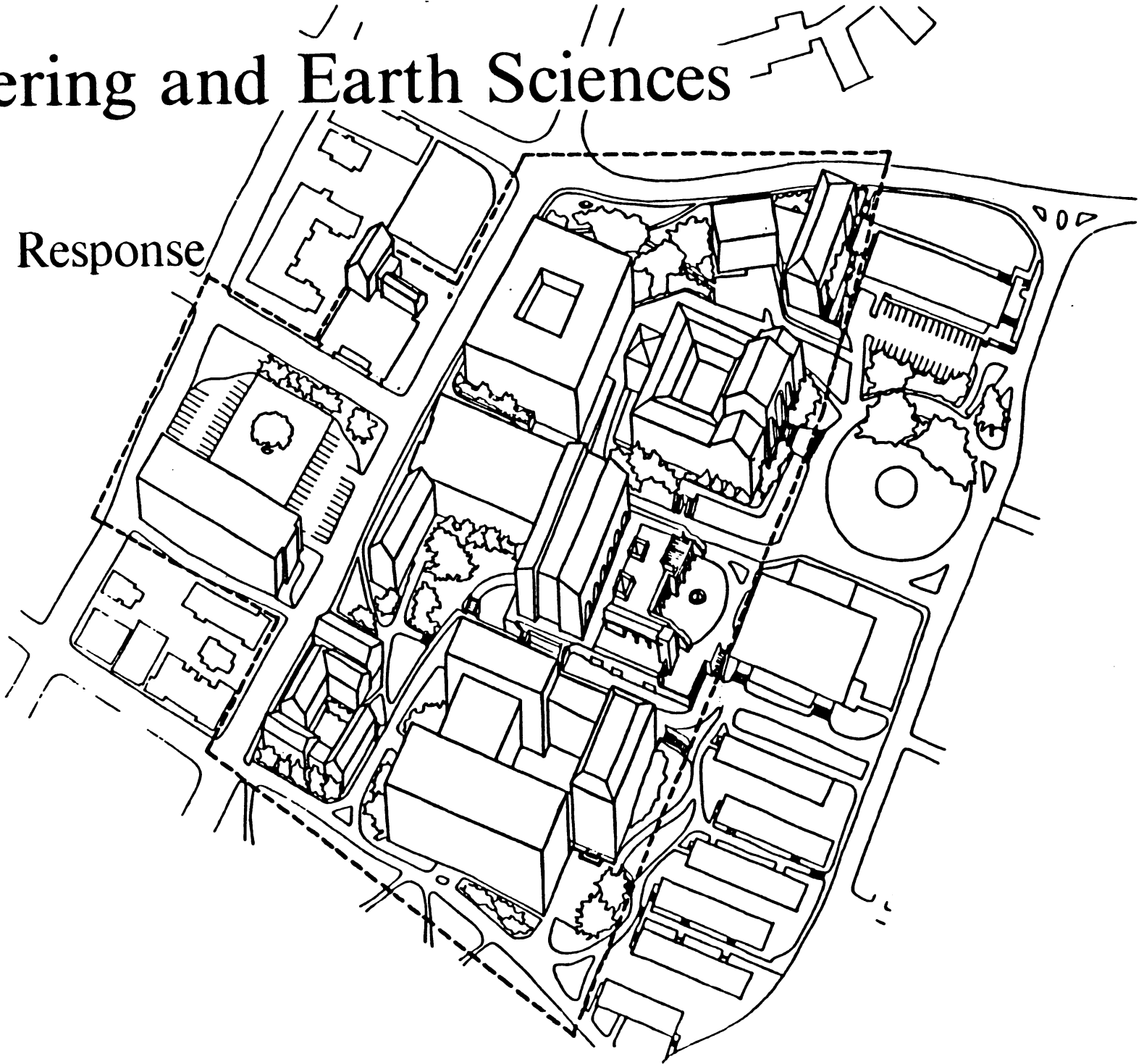
In addition to the approved projects for Cory Hall, this precinct needs a very substantial amount of work to upgrade the space and correct deficiencies in practically all of its buildings, except for the recently built Bechtel Engineering Center, to relieve the pressure of overcrowding in all academic programs, and to improve the quality of its open spaces. Proposals to relieve overcrowding in the precinct include the addition of a new fifth floor on Cory Hall, and of a new wing to Etcheverry Hall. A major renovation combining seismic safety work with programmatic upgrading in the Hearst Memorial Mining Building is long overdue.

A detailed description and evaluation of the twelve buildings in Precinct I is to be found in the report Phase I of Berkeley Campus Space Plan, Precinct I of Campus Space Resources Survey, Engineering and Earth Sciences, Revised August 1981.



# Engineering and Earth Sciences

## Phase II Precinct 1 Response



## PHASE II - PRECINCT I RESPONSE

The representatives of the several departments that occupy campus space in precinct I, Engineering and Earth Sciences, held several meetings to exchange information and opinions about space utilization in the northeast sector of the campus and to prepare a precinct response to the Phase I report of the Berkeley campus space plan.

Their report is in three parts with an appendix. The first part is a summary of the most significant space needs within precinct I. The second part consists of direct summary statements from individual academic units. The third includes collective responses, considering specific buildings. The appendix includes written statements and other documents offered by individual campus units.

### SUMMARY OF SPACE NEEDS

#### Engineering College Space Needs

The College of Engineering can solve most of its space needs within the space allocated to its departments, with the notable exception of the Department of Electrical Engineering and Computer Sciences. Currently, EECS occupies less than half of the total space which the department should have according to Restudy standards. Computer Science space needs in Engineering are measured by engineering space standards. The alleviation of this critical shortage of space in Electrical Engineering and Computer Sciences is the most urgent need in the College of Engineering.

More than a decade ago, EECS was scheduled to occupy approximately 40,000 assignable square feet in the proposed Etcheverry Hall Step II Addition. This never materialized. The project was scrapped in 1969 when all capital improvement projects were deleted from the budget. Since that time, this critical situation has been aggravated by the continued popularity, importance and growth of Electrical Engineering and Computer Sciences. This problem has been compounded by the

service of teaching introductory computer programming courses for the campus.

There is an immediate need for office space to house new faculty, for computer consulting rooms, and for equipment rooms. This immediate need is estimated to be 2,000 ASF, and immediate relief is needed.

With the creation of the new EECS-ERL microelectronics facility in Cory Hall, there is an intermediate need for additional space for displaced faculty, new faculty, research staff, graduate students, and research equipment. In addition, new programs in instruction, including microcomputer laboratories and the use of computer graphics in design, are pending. To satisfy this intermediate term need, the task force recommends that a fifth floor on Cory Hall be constructed as soon as possible. This would provide 16,000 ASF of desperately needed space. Preliminary studies have shown this project to be feasible, and it has been previously approved by The Regents (November 15, 1979). Intermediate need is defined as two to three years away.

In addition to the fifth floor of Cory Hall, the long-term needs of EECS and of the College of Engineering can be satisfied by adding the two projected wings to the existing Etcheverry Hall as separate buildings connected at various floors. The task force suggests that these wings be added successively. The first wing would house the CS Division of EECS, with all CS space being transferred from Evans Hall. We project that Computer Science would occupy most (35,000 ASF) of the new wing. The remainder could be occupied by additional large classrooms, other general purpose space for computer terminals and facilities for computer aided design. In 1969, the southeast wing was projected to have 40,000 ASF in five floors, although in a new configuration, there could be more floors and more space per floor. If all the above steps are progressively taken, EECS would have an additional 30,000 ASF, still significantly less than the space need calculated by Restudy standards.

In the long term, the balance of the EECS need could be met with the construction of the second Etcheverry wing. A recommendation on this long-term need is deferred until the most critical shortages are met.

### Classrooms

The nature of professional education requires that the students be in contact with the Engineering faculty, not only as they are lecturing, but in the professional environment of the buildings.

The specialized needs of engineering manifest themselves in many ways. During instruction, special demonstrations are conducted, pieces of equipment are shown, various projection equipment and other teaching aids are used, computer displays are utilized, etc. In order to make use of this equipment, the classrooms should be in the same building as the equipment. In addition, the College of Engineering should have control of these classrooms. This would permit adjustment of class size to the available classrooms, and to section and schedule changing within the College, thus optimizing use of facilities.

### Earth Sciences Building Unit Space Needs

The units housed in the Earth Sciences Building have both long-term and short-term space needs. The long-term needs will be alleviated when the Museum and Department of Paleontology move to a renovated Life Sciences Building and the Seismographic Stations is relocated. Assuming that these moves will take place, and assuming that such moves are at least five to seven years away, the units in the Earth Sciences Building have short-term space requirements that must be met. The only solution to the short-term needs for the units in the Earth Sciences Building is to occupy other campus space until the Department and Museum of Paleontology and the Seismographic Stations move to new quarters.

The needs of Geology and Geophysics for office space, for storage of archival materials (those in the Museum of Geology)

and for laboratory space are great. These needs hinder the development of academic programs in Geology and Geophysics as has been documented in a recent review of the Department.

The Museum and Department of Paleontology and the Seismographic Stations have pressing needs for greater storage space for archival materials (fossils and seismograms).

The Department of Geography has a measurable shortage of space for faculty and graduate student offices, with the department occupying only a little more than half the space it should have according to Restudy standards.

#### Space Improvement

Reports of the various departments show that a significant amount of the existing space must be improved in order for it to be utilized to its fullest. These reports include almost all the buildings of the precinct. It is recommended that space that cannot now be used to its fullest potential be upgraded and made available for new uses. There are many such examples in the precinct. The most vexing of these is the renovation of obsolete and inefficient space in Hearst Memorial Mining Building. Much of the space is not suited to current programs in mining, metallurgy and engineering geoscience. Jury-rigged laboratories severely hamper these educational programs.

Other areas in need of major renovation include: McLaughlin Hall for the Dean's Office, Construction Engineering and the Institute of Transportation Studies; Hesse Hall for Mechanical Engineering; and the Naval Architecture Building for Naval Architecture and Offshore Engineering.

Details of the deficiencies of these buildings are listed in the third part of the task force report.

#### SUMMARY OF UNIT RESPONSES

Civil Engineering. The Department of Civil Engineering occupies 134,255 ASF in

four buildings, Davis, O'Brien, McLaughlin and North Gate Halls. 92% of the space assigned to the Department on campus is in Davis and O'Brien Halls. It is important to note, as clearly described in the Phase I reports on Davis and O'Brien Halls, that the bulk of this space is occupied by the large research and teaching laboratories required to conduct a first-rate educational program in structural engineering, geotechnical engineering, sanitary engineering and hydraulic engineering. These large laboratories are necessary because of the physical size of specimens, facilities and equipment needed in the experiments that must be conducted. The department earns 143,000 sq. ft. from restudy standards. These figures appear realistic and indicate a continuing need for the large space allocated to graduate student needs.

Electrical Engineering and Computer Sciences. The Department of Electrical Engineering and Computer Sciences occupies one half of the less than 205,000 ASF earned through Restudy standards. Virtually all EECS activities, teaching, research and administrative, are presently constrained by space needs. To meet immediate needs for space for new faculty, research assistants, graduate students and research programs, another 16,000 ASF of space is needed by 1985 in precinct 1 and an additional 14,000 ASF for the CS Division contiguous with CS space (presently in precinct 2).

Industrial Engineering and Operations Research. The Department of Industrial Engineering and Operations Research has only 9659 ASF, less than one-third of the space earned through Restudy standards. Despite this nominal shortage, the space currently assigned to the IEOR Department is reasonably sufficient, being fairly well matched to instructional and administrative needs, with some exceptions. For example, teaching assistant and reader facilities are inadequate.

There is a growing instructional demand for use of time-shared computing facilities, both for development of interactive decision models, and for access to remove

data bases and software. This demand can not now be met.

Materials Science and Mineral Engineering. The Department of Materials Science and Mineral Engineering lacks teaching lecture rooms, seminar rooms, upper division laboratories, and research laboratories in certain areas. Because of limited laboratory facilities on the campus, much of the Materials Science research is conducted at the Lawrence Berkeley Laboratory. This tends to separate class, laboratory and conference activities of faculty, graduate students and postdoctorals. At the lower division level, the Department has a very good laboratory area for the teaching laboratory for the upper division physical metallurgy courses. The Department has or will have three new faculty to cover areas for which upper division laboratories do not exist - electronic materials, mechanical behavior, and extractive metallurgy. In some cases, faculty offices do not exist or are totally inadequate.

No space in Hearst Mining Building should be abandoned, because it is badly needed by the various programs in Materials Science and Mineral Engineering. However, it certainly must be greatly improved.

Mechanical Engineering. The Department of Mechanical Engineering occupies 92,515 ASF in Etcheverry Hall and Hesse Hall, and 5,596 ASF at the Richmond Field Station. This is about 8,000 ASF short of the space the Department earns through Restudy standards, even including the space at Richmond.

The Department is shorter on academic office space and space for research and teaching assistants than on laboratory space, but it cannot be interpreted that all Mechanical Engineering laboratory space is acceptable. Hesse Hall is an old, obsolete barn. It should be razed, but it houses the steam and internal combustion engine laboratories, and these would be virtually impossible to replace. The problem in Etcheverry Hall is that all laboratories were originally designed for a specific function rather than being modular and

flexible. This means periodic rerouting of utilities and alterations of special installations as research interests or faculty change. This is a continuous process.

Converting the open low pressure research laboratory on the fifth floor of Etcheverry to enclosed offices would be a simple and inexpensive way to create more usable office space for the department.

Naval Architecture and Offshore Engineering. This is the smallest Engineering department. It occupies an old building which has the misfortune of being a campus landmark. The Naval Architecture Building is not only old, but in a state of disrepair and in need of major work. These deficiencies are clearly stated in the Phase I report and will not be repeated here. Since this major repair may not take place, or at least not soon, there are several minor projects which can be undertaken immediately to improve the habitability of assigned space.

The Department of Naval Architecture and Offshore Engineering needs more space. It would be preferable to have more space within the Naval Architecture Building, but that is not critical. Currently, the Department has no conference room assigned to it and often uses either the library or the drafting room for department seminars and meetings.

Nuclear Engineering. The Department of Nuclear Engineering currently occupies 22,465 ASF in Etcheverry Hall. It is badly deteriorated space owing to shoddy construction and poor maintenance, but it is numerically adequate. The anticipated major need of the department will be the introduction of interactive computing.

Geology and Geophysics. The Department of Geology and Geophysics presently occupies 27,190 ASF in the Earth Sciences Building; 1,800 ASF of this is occupied by a departmental Museum of Geology. The 1980-81 Review Committee of the Graduate Division scathingly condemned the

shortage of laboratory and research space, and the deleterious effect this has had on the Department's academic program. There has been a major change in the earth sciences since 1961 when the building was completed, involving a shift away from field-oriented research and teaching and toward laboratory work. The consequent problem of inadequate facilities can only worsen as older faculty retire and are replaced by young laboratory-oriented faculty. The Department currently needs 12,750 additional square feet in order to carry out its current and projected academic plans and research programs. The space will be used thusly:

- 8,350 ASF Research laboratories
- 1,200 ASF Geophysics teaching and data display lab
- 1,500 ASF Graduate student and post-doc office space
- 600 ASF Student, faculty and staff commons area
- 300 ASF Computer facility for faculty, students and staff
- 150 ASF Welding facility for machine shop
- 650 ASF Close-in storage for field and class equipment, electronics and machine parts, and chemical and radioactive materials.

In the long term this need can be met when the Department and Museum of Paleontology are relocated.

Geography. The Department of Geography currently occupies 7,655 ASF of space in Earth Sciences Building and 1,400 ASF of space in Building T-5. It has been severely underhoused for many years. According to Restudy standards, the space deficiency is almost as large as the space assignment. This is not a paper insufficiency. When the allotment of space was made to the Department in 1961 the faculty consisted of seven persons. Currently there are 14 active faculty (13 FTE). In this same period, the number of graduate students and undergraduate majors has grown several fold. Most of the space in the Department is taken up by faculty offices.

Geography space needs fall into three basic categories: additional faculty offices, a restoration of preparation and storage space, and the return to the Department of the laboratory space forced to be abandoned owing to departmental expansion.

The department needs 8,000 ASF. This need can be met in the long-term when the Seismographic Stations and the Department or Museum of Paleontology are relocated. In the short-term, the department needs 3,000 ASF of other campus office space.

Paleontology (Department and Museum). The Department of Paleontology has somewhat in excess of its assignable space under the Restudy standards, except that the Museum of Paleontology occupies 1,288 ASF of the Department's space, thus reducing it to 95% of its assignable allocation. The Department, therefore, effectively occupies 9,563 ASF and the museum 16,996 ASF of space in the Earth Sciences Building. These spaces must be contiguous because of the archival and teaching nature of the Museum. A joint increment of at least 4,000 ASF of space adjacent to the present space will be required over the next ten years, in order adequately to carry out academic and research programs. As was pointed out in the Phase I report, the nature of research endeavors in paleontology has changed from the time the Restudy standards were developed, when most research was field-oriented and small office facilities were all that were needed on campus. Teaching and research is increasingly laboratory-oriented, and requires larger in-house facilities for both faculty and student research. This was not accounted for in the design of the Earth Sciences Building. Over the next ten years the museum will need an additional 5,000 ASF of archival storage space outside the present Department-Museum complex (in addition to the 5,500 square feet in other facilities such as Richmond and Sather Tower, which are already utilized).

It is planned that the Department and Museum will be relocated in renovated

space in the Life Sciences Building, once the new biology building is completed.

Earth Sciences Library. The Earth Sciences Library presently occupies 5,782 ASF of space in Earth Sciences Building. The Library will need at least an additional 9,500 ASF of space, contiguous to present accommodations, over the next ten years, in order to maintain its current operation and keep up with increases in knowledge and contemporary methods of providing this knowledge to earth scientists. The reading room needs major expansion, as does the book stack area. The staff work area must be improved and enlarged, and must accommodate a catalogue input terminal. Space must be provided for group study, for terminals, and for an improved and secure circulation area. The present map area is woefully inadequate. Little space would be released by the movement of the paleontology section of the library to Life Sciences Building.

Seismographic Stations. The Seismographic Stations presently occupies 3,149 ASF in the Earth Sciences Building. In order to fulfill its function in the University and the State the unit must have an additional 8,000 - 10,000 ASF of space, contiguous to current space. The only possible way of accomplishing this seems to be to relocate the Stations and make a total allocation of about 16,000 ASF available elsewhere. A location off but convenient to the campus would be feasible for this unit. This would free the space in the Earth Sciences Building, in Haviland Hall, and in Sather Tower.

In the short-term, before other permanent space is provided, the Stations has an urgent need of 800 ASF of storage space for seismograms.

Other Academic Units. Not all departments and units participated in this precinct study. The Department of Biophysics and Medical Physics and LBL's Division of Biology and Medicine (Donner Laboratory) participated in the first meeting, but subsequently were reassigned for inclusion in

precinct 5, Agriculture and Life Sciences, for the purposes of The Phase II study. The School of Public Policy participated in the first meeting, but did not participate in this precinct report. The School has indicated it has no major space problems and is generally satisfied with its space allocation. Its unit report is included for Phase II in precinct 4, Humanities and Social Sciences.

#### COLLECTIVE RESPONSES ON INDIVIDUAL BUILDINGS

Cory Hall. Space in Cory Hall for the current and projected needs of the Department of Electrical Engineering and Computer Sciences is both physically inadequate and acutely short. The details of the space shortage are documented in the separate Departmental and CS Division memos.

The condition of the current space is largely substandard, especially with regard to ventilation, heating, and water leaks. Many of the deficiencies will be corrected if the Cory Hall Major Capital Improvement Project, Utilities Systems and Handicapped Improvements/CAC Deficiencies, is funded in 1981-82. However, the size, condition, and general nonavailability of classrooms remain as severe handicaps to the teaching program.

Hearst Memorial Mining Building. This building is an old monument. It was constructed in an era of grandeur, but space in the Hearst Mining Building is poor and unsafe by any of today's measures.

The need for total renovation of Hearst Mining Building is very apparent to anyone who walks through this rabbit warren of outmoded, inefficient space. For many years, the activities housed in Hearst Mining have submitted a continuing list of minor capital improvements to patch the building together. What is really needed is a totally new and imaginative plan for efficient utilization of space. The space committee within the building has been working on a comprehensive plan for reuse

of the entire building based on departmental academic programs, as well as complimentary space for other activities which might appropriately be housed in the building. This effort has been hampered by the need for an engineering feasibility study, which was requested several years ago. The request for this study and request that something be done about the Hearst Mining Building are strongly supported by the task force.

Davis Hall. The Phase I assessment of Davis Hall is fundamentally correct. Davis Hall has not been properly maintained since it was built. The interior of the building needs painting in almost every room, and leakage remains a problem. While some attempts have been made to eliminate the problem, it persists. The heating and ventilation systems have never operated properly. In addition, the air conditioning systems are very energy intensive, having been designed when the cost of power was a fraction of current rates. Some of the controlled environment rooms on the third and fourth floors have never been fully functional. The current funding to rehabilitate this part of the building is over a million dollars short of the engineer's estimates.

Davis Hall was originally designed to house only the Structural Engineering and Structural Mechanics Division. Before occupancy, however, the space was reallocated to provide space for the Geotechnical and Sanitary groups in addition to SESM. In the process of reallocation of space, many locations were used for purposes other than those in the original design. This results in many offices without windows as well as crowding of students, visiting lecturers, etc. The building is also short of sufficient examination and conference rooms.

Bechtel Engineering Center. The Stephen D. Bechtel Engineering Center, completed in 1980, serves as the intellectual and social hub of the College of Engineering. During the first year of operation the building has been very popular with stu-

dents, faculty, and staff. It has largely filled its planned role. Minor ventilation and mechanical problems are being corrected.

**McLaughlin Hall.** The Phase I McLaughlin Hall assessment and recommendations seem quite appropriate. The building was built in 1931 with minimal utilities. Overcrowding of administrative areas in the building is being exacerbated by increased activity of special programs and additional requirements of regular functions. Space is needed for the MESA program, the new recruitment and retention program to assist minorities and women, the Berkeley Engineering Fund, and the Industrial Liaison Program. Staff areas in the graduate, departmental accounting and personnel offices are overcrowded and require extensive alterations to make them functional. Space is needed for word processing and computer terminals for administration. A minimum of 2,000 square feet of new space needs to be developed and the existing building requires extensive renovation floor by floor.

**O'Brien Hall.** O'Brien Hall has one dismal Classroom which ought to be at least painted and brightened up. The teaching assistants work out of thinly partitioned, spartan cubicles. Two of the faculty offices have no windows, and all but one of the others are small by normal allocation standards. The roof leaks. The air-conditioning and heating system wastes approximately 80% of the energy it consumes, in part because air is both heated and cooled and then mixed to reproduce inside air at the same temperature as outside air, and in part because the system is set to circulate far more air than is needed. The laboratory portions contain the large equipment needed by the hydraulic and coastal group in Civil Engineering, some equipment used by the fluids group in Mechanical Engineering, and a pilot filter plant used in laboratory courses in Sanitary Engineering. The laboratory is reasonably well-equipped for its purposes.



SITE OF PROPOSED NEW WING FOR ETCHEVERRY HALL

**Hesse Hall.** Hesse Hall is an old barn of a building. It contains 33,712 ASF, 90% of it occupied by Mechanical Engineering. The building houses the large, heavy or bulky equipment of the Department. The Phase I statement that most of this equipment is gone needs clarification. Some has been removed, as faculty move to other interests and other space becomes available, but there is no alternate space for steam and power studies or for equipment that requires overhead space. Hesse Hall is the only high bay area for mechanical engineering. There are many deficiencies in Hesse Hall but the building does supply a need and if the building were razed, it would have to be replaced in kind.

**Earth Sciences Building.** The Earth Sciences Building has only one large classroom-auditorium, Room 141. The room is used by many departments outside the building as well as those within. It lacks recessed lighting appropriate for note-taking while slides or other visual aids are being used. Ventilation is bad. The room was renovated in the past three years, and so is reasonable in appearance.

Space in the Earth Sciences building is at a premium. The building houses three academic departments plus organized research units and a branch library, when realistically it should house only two academic units and a library. All units in the Earth

Sciences Building have a serious space shortage. The laboratories are either crowded and inadequate or nonexistent, and there is insufficient office space.

North Gate Hall. The Water Resource Center Archives houses and administers two specialized libraries, the Einstein Library consisting of papers in sediment transport acquired by Professor Einstein over many years, and an ocean engineering library containing more than 16,000 reports and papers. In addition, Berkeley has recently been selected as the site of the Aquatic Habitat program for San Francisco Bay, sponsored by the State Water Resources Control Board. A major purpose of the program is to develop a data base for all kinds of pollutant-related studies for the Bay. These separate libraries alone are a resource which is probably not matched in more than one or two other universities in the United States. This unit will move to the space formerly occupied by the Engineering Library on the fourth floor at the end of 1981.

Naval Architecture Building. The Naval Architecture Building is old, in a state of disrepair and in need of major work. These deficiencies are clearly stated in the Phase I report. Painting and floor restoration is desperately needed.

Etcheverry Hall. From the standpoint of educational use of Etcheverry space, all Etcheverry departments concur with the assessment of the Phase I report regarding the deteriorated state of the building generally (due mainly to shoddy construction), to the poor quality of maintenance, and to the danger of crossing Hearst Avenue.

The basic problem in Etcheverry Hall is that all the laboratories were originally designed for a specific function rather than being modular and flexible. This necessitates periodic rerouting of utilities and alterations of special installations as research interests or faculty change. This is a continuous process and should be budgeted as such.

Donner Laboratory. Comments will be included under precinct 5.

2607 Hearst. Comments will be included under precinct 4.

## APPENDIX

The following items offered by individual campus units can be found in the original full report of the task force and are not included here.

- A. Report on the College of Engineering Contributions to Phase II Space Report.
- B. Space Requirements and Recommendations, Earth Sciences Building.
- C. Phase II Report for Precinct I, from units in Earth Sciences Building.
- D. Phase II Report, Civil Engineering.
- E. Electrical Engineering and Computer Sciences Space Needs.
- F. Future Space Requirements for Computer Science and Information Technology Education.
- G. Engineering Space Plan, from Industrial Engineering and Operations Research.
- H. Space Plan from Materials Science and Mineral Engineering.
- I. Mechanical Engineering Space Plan.
- J. Comments for Phase II Space Report, from Naval Architecture and Offshore Engineering.
- K. Nuclear Engineering Space Plan.
- L. Utilization of Space in Earth Sciences Building from Geology and Geophysics.
- M. Review of Present Use of Space and Future Needs, Department of Geography.
- N. Letter from William B. N. Berry, Chair, Department of Paleontology and Director, Museum of Paleontology, to R. F. Steidel, Jr., April 29, 1981.
- O. Statement from W. L. Garrison, Director, Institute of Transportation Studies to R. F. Steidel, Jr., June 5, 1981.

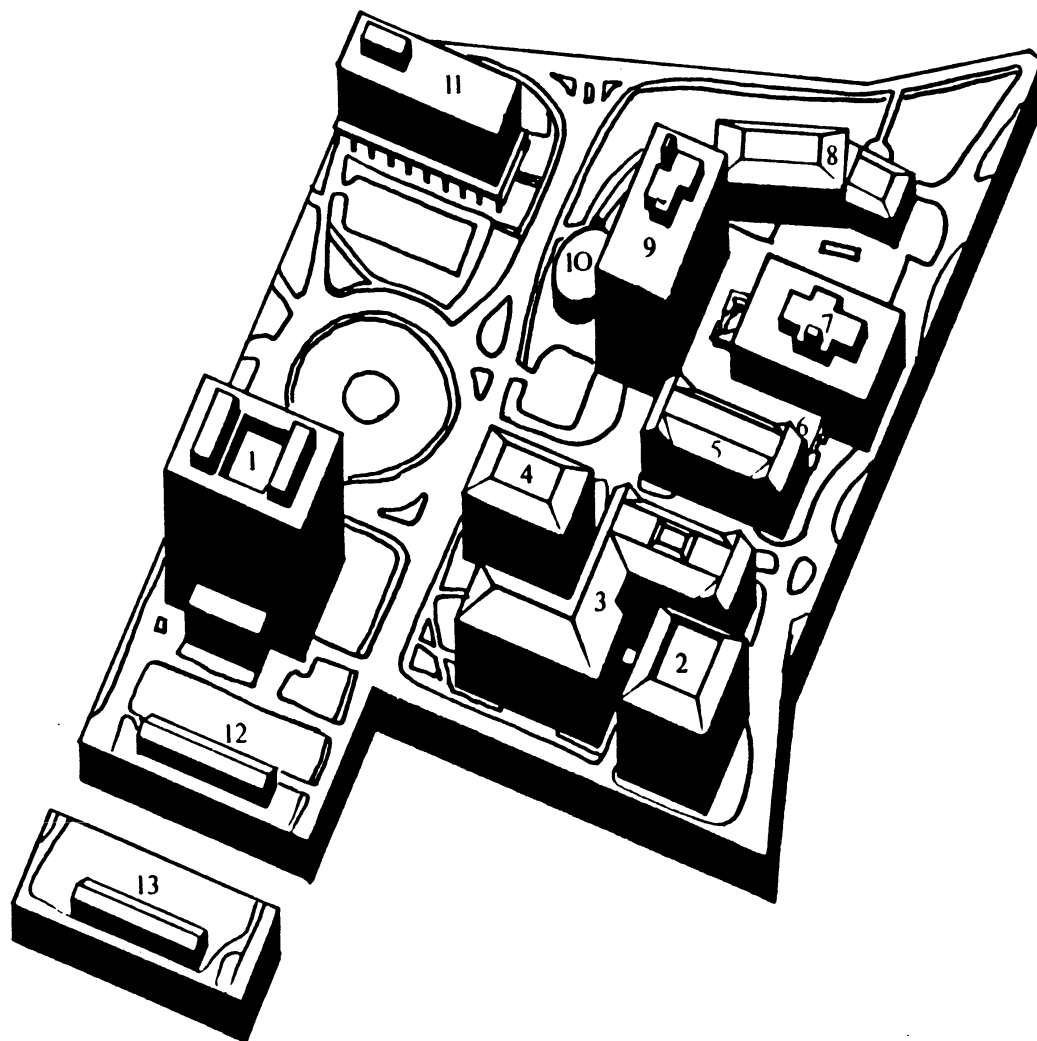


# Mathematics and Physical Sciences

## Phase I

## Precinct 2 Overview

1. Evans Hall
2. Birge Hall
3. LeConte Hall
4. Campbell Hall
5. Gilman Hall
6. Giauque Laboratory
7. Hildebrand Hall
8. Lewis Hall
9. Latimer Hall
10. Physical Sciences Lecture Hall
11. Stanley Hall
12. T-4
13. T-7



## PHASE I - SURVEY

### PRECINCT 2 OVERVIEW

Mathematics and Physical Sciences

#### Buildings and Landscape

The Mathematics and Physical Sciences precinct of the Berkeley campus is located on the eastern edge of the central campus between the Engineering and Earth Sciences precinct and the Art, Music and Professions precinct. The precinct is bounded on the east by Gayley Road, with the Greek Theatre and its attendant groves of Eucalyptus and Pine forming a strong green edge. Similarly, the southern edge is clearly defined by the dense vegetation of Strawberry Creek. To the west the Campanile Esplanade and the glade encompassing the T-buildings form another edge. Of the six temporary buildings in the glade, only T-4 and T-7 have been included in this precinct because they house academic units, namely the Institute of Human Learning, Energy and Resources, and Health and Medical Sciences. The northern edge merges imperceptibly with the Engineering and Earth Sciences precinct and is demarked by a disconnected pedestrian path extending from Gayley Road past Donner Laboratory, Hearst Mining Building, Bechtel Engineering Center and McLaughlin Hall.

Similar in character to Engineering and Earth Sciences, the Mathematics and Physical Sciences precinct is a dense, urban area of the campus. The visual impression is of an architectural complex set amidst a backdrop of the trees of the east and south edges. Great architectural diversity characterizes the precinct, varying from the fine old neoclassical buildings of LeConte and Gilman to the brutal monolithic form of Evans Hall. Except for Stanley and Evans Halls, the old and new buildings are harmoniously interrelated in a dense complex south of University Drive. The newer buildings such as Latimer Hall repeat the color of the red tile roofs of the older buildings through the use of red brick and tile in their facades, creating a harmonious color relationship.

Two major open spaces dominate the precinct. The formal axial space extending from Hearst Mining Building Circle south between LeConte and Gilman to the creek is a remnant of the Phoebe Apperson Hearst plan. This north-south axis separates the College of Chemistry complex (Gilman, Hildebrand, Lewis and Latimer Halls, Giauque Laboratory and Physical Sciences Lecture Hall) from the western cluster of buildings (LeConte, Birge and Campbell Halls) which house principally Physics, Astronomy and the College of Letters and Science. Stanley Hall and Evans Hall each stand alone on either side of the Circle; the former, programmatically unrelated to the rest of the precinct, is devoted to Molecular Biology and the Virus Laboratory, while Evans provides space for the Departments of Mathematics and Statistics, the Computer Science Division of the Electrical Engineering and Computer Sciences Department, the Graduate School of Journalism, the Office of Computing Affairs and part of the Economics Department. The north-south axis is not clearly defined because of interruptions of both ground plane and sight lines created by the high bank of the parking lot west of Latimer and by overgrown shrubs and trees in Hearst Mining Circle.

Originally intended as the forecourt for John Galen Howard's Grand Auditorium (where Stanley Hall now sits) at the head of the Grand Mall extending to the west entrance, the Mining Circle has been entirely cut off to the west by hulking Evans Hall. Its orientation is to the south and is loosely connected to the axis it heads. Hearst Mining Circle is the major public open space of the precinct as well as the east portion of the campus. Heavy use and insensitive changes through the years have caused serious deterioration of the space. The circular fountain is inoperable. Although it is an important focal point, it sits too high to be seen clearly. The overgrown planting is unrelated to the geometry of this formal space. Although the trees and shrubs serve to screen the parking lot and Stanley Hall to the east, potential use of the ground plane is denied.

The axis between Gilman and Le Conte Halls is a pleasant retreat from the busy Mining Circle. An unusual geometrical arrangement of Coast Live Oaks (*Quercus agrifolia*) defines the space and provides a superb transition to the oaks and other wild vegetation of the creek at the southern termination of the axis. Visually disconnected from the Circle by the parking lot, it is still a major north-south pedestrian circulation route. However, it is continually intruded upon by service vehicles using the walkways as a shortcut. The space lacks adequate, well-designed seating and contains only two backless benches. The ubiquitous concrete bicycle holders clutter the west side of the space in front of Le Conte.

The north-south axis contrasts with the other open space, a modern urban roof plaza which connects Lewis, Latimer, Hildebrand and Gilman Halls (and Giauque Lab beneath). Because these spaces are visually disassociated, there is no visual incongruity. Nevertheless, the landscape itself is discontinuous within the precinct. Hildebrand Hall subdivides the roof plaza into two connected subspaces.

The larger subspace between Lewis and Hildebrand contains a pleasant fountain, various raised planting beds and the top of a service elevator. Although the space is warm and sunny with an open southerly exposure, it seems to be cold and uncomfortable owing to the diminutive size of predominantly fine-textured trees. Seating is provided on the low seat wall surrounding the foundation, but more seating with backs and in conversational clusters is needed. The paving materials (concrete and brick) and structural details are quite good and give a refined appearance to the space. The exception is the four benches radiating around one circular planting bed. These are too high and are surfaced with flimsy wood boards.

The west subarea between Hildebrand and Gilman Halls has a very different, more rustic character because of the raised wooden planting bed surrounding the top of the ventilation shaft of the Giauque Lab

and decorated on the cupola salvaged from the old Chemistry Building. This historic relic adds an interesting feature and reminder of the past in a modern setting. The wooden benches are arranged in comfortable recessed alcoves in the wall of the planting bed. Owing to poor maintenance (lack of adequate water and fertilizer), the plantings detract rather than add to the quality of the space. Although not as obvious, this maintenance problem occurs throughout the entire roof garden.

North of Latimer Hall and between it and University Drive, a small, paved, triangular, partially sunken plaza serves as a kind of platform on which rests the oval cylinder of the Physical Sciences Lecture Hall. A rather successful effort was undertaken in the design of this plaza through use of compatible materials, especially the unifying element of patterned red bricks. However, the harshness of concrete and brick dominates, despite the unconvincing attempt to introduce some greenery on the roof of the Lecture Hall.

### Circulation

The precinct is divided by University Drive which extends from Gayley Road at the east entrance to the campus. This road brings a high volume of vehicular traffic into the precinct. As a circulation hub for the east end of the campus, this area is congested and noisy with the intermingling of traffic lanes leading to the parking lots, heavy north-south pedestrian traffic, Humphrey Go-BART busses, automobiles and service vehicles. The campus entrance at Gayley Road is neither clearly marked nor adequately signed. The entry kiosk is located well into the campus and is partially hidden in the shade of a clump of trees.

The heavily used bus stop is not clearly defined. Seating and visitor information is inadequate for such an important circulation mode. Bicycle parking is similarly inadequate both within the Circle and throughout the precinct. Careful and complete redesigns of the campus entrance at Gayley Road and of the Mining Circle

are needed to upgrade this area which is one of the most significant and historic places on the campus.

### Space Occupancy

Eight of the precinct's thirteen buildings contain general assignment classrooms, while six of the buildings house LBL-funded activities. With one exception (Electrical Engineering and Computer Sciences), the I&R departments having space in the precinct are almost entirely contained within the precinct. Several units do have limited storage at the Richmond Service and Storage Facility.

In total, the precinct provides space for a Professional College with two formal departments, a Professional School, five departments in the College of Letters and Science, a major division of another I&R department, three Organized Research Units, a number of other instructional and research programs, and three branches of the General Library, in addition to classrooms and support units. The thirteen buildings included in the Mathematics and Physical Sciences precinct, plus Stanley Hall Annex, contain approximately 687,000 assignable square feet (ASF) and 1,192,000 outside gross square feet (OGSF). This amounts to 16.9% of the central campus ASF and 17.2% of its OGSF.

The precinct covers roughly 8.8% of the central campus area. After the adjacent Engineering and Earth Sciences precinct, it forms the second densest and most populous part of the campus. Thirty-five percent of this precinct's land is covered with buildings as compared with an average of 20% for the central campus, and the feeling of urban density is relieved only in the open area of the Mining Circle.

Space allowances under the Restudy space standards, which have been used by the State for many years to assess the adequacy of interior I&R space in terms of amount, are compared with present space assignments in Table 1. Each of the disciplines shown has a separate set of standards, and in fact two individual standards

are applied under Interdisciplinary Studies. Since the standards are not intended to apply to individual departments, breakdowns below the discipline level are not shown. The most outstanding percentage difference between actual space assigned and space calculated under Restudy is in the Mathematical Sciences discipline. The campus has recognized for several years that the space assigned to the two departments in this discipline, Mathematics and Statistics, is excessive in comparison with other space assignments. Some reassignment has already been made, and further adjustments are being implemented to bring this discipline more into line with current campus standards. These reassignments, combined with relocations of several units in different precincts, will result in more equitable accommodations and thereby alleviate some long standing space deficiencies. The Graduate School of Journalism has a relatively modest space need which will be alleviated as a part of these pending relocations. Chemical Engineering's need is more serious, however, despite two recent major capital improvements to provide upgraded instructional and research laboratory space in Gilman and Hildebrand Halls. In fact, both departments in the College of Chemistry have continued to grow. While Physics and Astronomy have generally adequate facilities, in terms of amount, Chemistry is crowded, despite the fact that the actual-to-Restudy percentage is over 100%. Molecular Biology's allocation is barely adequate. The high actual-to-Restudy percentage for it is somewhat misleading because of built-in inefficiencies in space configurations and inadequate facilities which cannot be improved without substantial capital expenditures. The actual space occupied is about average for what modern biological research and teaching requires.

### Space Quality

The space problems of this precinct can be better understood by evaluating the age and condition of the buildings. This information is summarized in Table 2. In this table, the precinct's buildings are rated from one (very poor) to five (very good) in

Table 1  
Mathematics & Physical Sciences Precinct  
COMPARISON OF ACTUAL INSTRUCTION AND RESEARCH SPACE WITH RESTUDY ALLOWANCES

| <u>Discipline</u>                | -1-<br>Std. ASF<br>Under<br>Restudy (g) | -2-<br>Actual<br>Std. ASF<br>Within<br>Precinct (h) | -3-<br>Actual<br>Std. ASF<br>Outside<br>Precinct (h) | -4-<br>Actual<br>Nonstandard<br>ASF (h) | -5-<br>Actual Std. ASF<br>as Percent of<br>Restudy Std. ASF<br>([2 + 3] ÷ 1) x 100 | -6-<br>Excess or Deficiency<br>of Actual ASF<br>vs. Restudy ASF<br>(2 + 3 - 1) |
|----------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Mathematical (a)<br>Sciences     | 40,146                                  | 74,038                                              | 0                                                    | 674                                     | 184% (i)                                                                           | + 33,892                                                                       |
| Physical (b)<br>Sciences         | 257,687                                 | 311,677                                             | 8,331                                                | 1,381                                   | 124%                                                                               | + 62,321                                                                       |
| Chemical (c)<br>Engineering      | 51,578                                  | 36,214                                              | 0                                                    | 5,447                                   | 70%                                                                                | - 15,364                                                                       |
| Biological (d)<br>Sciences       | 15,003                                  | 23,037                                              | 510                                                  | 0                                       | 160%                                                                               | + 8,544                                                                        |
| Professions (e)                  | 8,994                                   | 7,485                                               | 934                                                  | 0                                       | 94%                                                                                | - 575                                                                          |
| Interdisciplinary (f)<br>Studies | 5,203                                   | 3,685                                               | 336                                                  | 0                                       | 77%                                                                                | - 1,184                                                                        |
| Precinct Total                   | 378,611                                 | 456,136                                             | 10,111                                               | 7,502                                   | 123%                                                                               | + 87,636                                                                       |

(a) Includes Departments of Mathematics and Statistics.

(b) Includes Departments of Astronomy, Chemistry and Physics.

(c) Includes Department of Chemical Engineering.

(d) Includes Department of Molecular Biology.

(e) Includes School of Journalism.

(f) Includes Search for Excellence in Science & Mathematics Education and Energy & Resources Program.

(g) Restudy standards date from 1955 and were revised in 1966, ASF is calculated using 1980-81 year average work load data.

(h) Actual ASF is from Fall 1980 facilities data system (FDX)

(i) Will be reduced following planned reassignments.

Table 2  
Mathematics & Physical Sciences Precinct  
SUMMARY OF BUILDINGS RATINGS

| <u>Building</u>  | <u>Age</u> <sup>1</sup> | <u>Program Suitability</u> <sup>2</sup> | <u>Fire and Life Safety</u> <sup>2</sup> | <u>Structural Safety</u> 2,3 | <u>Utilities</u> <sup>2</sup> | <u>Accessibility</u> <sup>2</sup> | <u>Maintenance</u> <sup>2</sup> | <u>Building Average</u> |
|------------------|-------------------------|-----------------------------------------|------------------------------------------|------------------------------|-------------------------------|-----------------------------------|---------------------------------|-------------------------|
| Evans            | 5                       | 4                                       | 2                                        | 4 [154]                      | 3                             | 3                                 | 2                               | 3.3                     |
| Campbell         | 4                       | 4                                       | 3                                        | 4 [533]                      | 3                             | 4                                 | 3                               | 3.6                     |
| LeConte          | 2                       | 3                                       | 3                                        | 3;4 [209]                    | 2;3                           | 2                                 | 2                               | 2.6                     |
| Birge            | 4                       | 4                                       | 2                                        | 4 [505]                      | 4                             | 4                                 | 2                               | 3.4                     |
| Latimer          | 4                       | 4                                       | 3                                        | 4 [434]                      | 2                             | 4                                 | 2                               | 3.3                     |
| Lewis            | 3                       | 3                                       | 3                                        | 3 [107]                      | 3                             | 3                                 | 3                               | 3.0                     |
| Hildebrand       | 5                       | 4                                       | 4                                        | 3 [259]                      | 4                             | 3                                 | 3                               | 3.7                     |
| Giauque          | 4                       | 3                                       | 3                                        | 4 [794]                      | 2                             | 2                                 | 4                               | 3.1                     |
| Gilman           | 1                       | 2                                       | 2                                        | 3 [410]                      | 2;3                           | 4                                 | 3                               | 2.5                     |
| Phys. Sci. Lect. | 4                       | 4                                       | 3                                        | 4 [144]                      | 4                             | 3                                 | 3                               | 3.6                     |
| Stanley          | 4                       | 4                                       | 2                                        | 4 [483]                      | 3                             | 3                                 | 2                               | 3.1                     |
| T-4              | 3                       | 1                                       | 2;3                                      | 2;3 [1267]                   | 2                             | 2                                 | 1                               | 2.0                     |
| T-7              | 3                       | 1                                       | 2;3                                      | 2;3 [1267]                   | 2                             | 2                                 | 1                               | 2.0                     |
| Precinct Average | 3.5                     | 3.2                                     | 2.7                                      | 3.5                          | 2.8                           | 3.0                               | 2.4                             | 3.0                     |

<sup>1</sup>Key: 1 = completed before 1921  
2 = completed 1921-1935  
3 = completed 1936-1950  
4 = completed 1951-1965  
5 = completed 1966 to present

<sup>2</sup>Key: 1 = very poor  
2 = poor  
3 = fair  
4 = good  
5 = very good

<sup>3</sup>Key: The bracketed number in the column to the right is the building's ranking from the Seismic Hazard Survey, State of California Buildings.

each of seven categories: age; program suitability; fire and life safety; structural safety; utilities; accessibility; and maintenance.

The thirteen buildings fall into two overall groups: the pre-1950 buildings have ratings from poor to fair, while those constructed from 1950 on are rated from fair to good. The two T-buildings average 2.0 (poor) and should be demolished as soon as their occupants can be relocated to permanent and suitable space. Their already rapid deterioration has been further accelerated in the last few years owing to the shortage of maintenance funds for the campus. The next two oldest buildings, Gilman and LeConte, are rated midway between poor and fair. Overall, LeConte is in somewhat better shape because of its more recently constructed Annex, but both Gilman and LeConte have serious deficiencies in maintenance, accessibility, ventilation and program suitability. Lewis Hall, the remaining pre-1950 structure, is rated fair. A number of minor capital improvements have upgraded space in this building to the point where modern chemical research can be carried on without difficulty, but several parts of the building still require upgrading. Stanley Hall is rated 3.1, just above Lewis. Revolutionary changes in biology since Stanley Hall's construction, as well as the phasing out of a major research program for which it was originally designed, require some alterations and upgrading to insure the most efficient utilization of the building. Giauque, Latimer, and Birge each have special problems but are generally without serious programmatic deficiencies for their present uses. PSL, Campbell and Hildebrand are considered good buildings which by and large are fulfilling their intended functions. Evans is in the process of a space reallocation. This new building has spaces of good quality that would adequately serve its present occupants with minor improvements, with the exception of the spaces allocated to computing-related activities which require major improvements just to keep up with the current volume of service.

Excluding the T-buildings, the overall precinct rating is 3.2, just a bit better than fair. This rating, somewhat lower than what might be expected, is a result of programmatic and other deficiencies of the precinct's older buildings. The proximity of the Lawrence Berkeley Laboratory and the availability of its facilities for the research of a number of faculty in the physical sciences undoubtedly contribute to the strength of this discipline at Berkeley in spite of the deficiencies of a number of its major campus buildings.

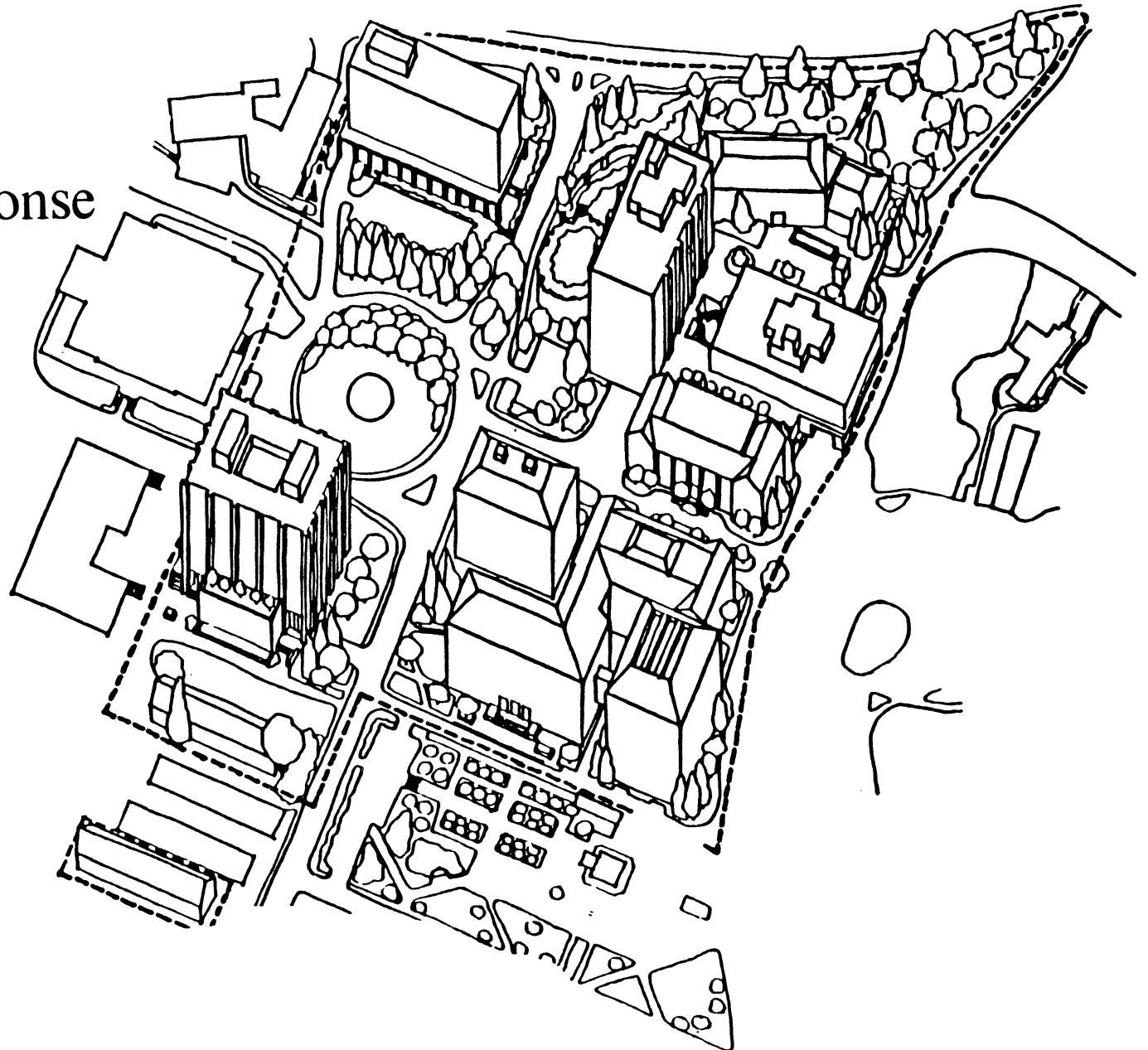
A detailed description and evaluation of the thirteen buildings in Precinct 2 may be found in the report Phase I of Berkeley Campus Space Plan, Precinct 2 of Campus Space Resources Survey, Mathematics and Physical Sciences, May 1981.

#### Proposals

The major capital needs of this precinct include additional space for the College of Chemistry, possibly in the form of a once-proposed additional building, and remodeling and upgrading of Stanley Hall to permit better space utilization. Should a determination be made that the growth of computing activities requires an expanded centralized facility on campus, Evans Hall may be a suitable candidate for a major improvement. This may take the form of increased allocation of existing space within the building, or of an addition to existing space on the western plaza. In either case, considerable work would be needed to upgrade the utilities in the building. Also, with the removal of temporary buildings west of Evans Hall, careful consideration must be given to the future of this area.

# Mathematics and Physical Sciences

Phase II  
Precinct 2 Response



## BACKGROUND AND DESCRIPTION OF THE PROBLEMS

Precinct 2 of the Berkeley Campus, the Mathematical and Physical Sciences precinct, is located at the center of the eastern edge of the campus. The buildings of the precinct are clustered around the east entrance to the campus on both sides of University Drive. The area has a high density of construction - about twice the average for the central campus as a whole - and the Hearst Mining Circle is the only sizeable open area interrupting the precinct's generally crowded appearance. Since the additional space needed by units in this precinct will further increase building density and may reduce parking, it is important that building additions and new buildings be designed with these problems in mind.

When the central part of campus was closed to most traffic some years ago, the east entrance became a major point of access for both visitors and employees arriving by car and for the delivery of supplies and equipment. Neither the landscaping nor the provision for traffic handling, however, are in keeping with the consequent importance of the east entrance. (The appearance of the entrance is in striking contrast with that of the open, spacious and imposing area surrounding the west entrance.) There is inadequate provision for passenger loading and unloading outside the east entrance, for control and rerouting of unauthorized traffic that turns into the campus, and for parking. Traffic handling and control, at least, could be substantially improved by relatively minor changes in the east entrance and its approaches.

Of the nearly 690,000 assignable square feet of floor area in the precinct, roughly 70% is in buildings completed in the period 1959-1971, 20% in buildings completed in 1948-1954, and 10% dates from 1917 or 1923. Two of the six remaining temporary buildings in the central glade, the two used exclusively by academic units, have been included in the precinct.

## Space Assignments

Many of the major buildings in the precinct are occupied almost entirely by single academic units: the College of Chemistry (219,000 ASF) in a complex of five buildings, the Giauque Laboratory, Gilman Hall, Hildebrand Hall, Latimer Hall and Lewis Hall; the Department of Physics (113,000 ASF) in Birge and LeConte Halls (although the SESAME project does occupy 851 ASF in LeConte); and the Department of Molecular Biology and the Virus Laboratory, MBVL (41,000 ASF), which are for practical purposes a single academic unit, in Stanley Hall. Relocation of MBVL to a new biology building at the western end of campus, where it would be near most of the other biological science units, would be desirable from many points of view. It would further the important campus goal of enhancing interaction and coordination of activities between the biology units; it would facilitate MBVL's access to new common-use facilities in new buildings; and it would solve the problem of access by MBVL staff and students to a nearby biology library, a problem which will be created when the Donner Library is moved to LBL. MBVL would be enthusiastic about the move if the necessary space and facilities were provided in the new location. The move has been considered, but is not included in the current plans for the development of new and renovated biology space, owing to cost considerations and overall campus priorities.

Space assignments in Campbell and Evans Halls as of the Spring Quarter 1981 (but not including classrooms assigned by the Office of Admissions and Records, OAR) are displayed in Tables I and II, respectively.

Table I Space Assignments in Campbell Hall

|                              | ASF    |
|------------------------------|--------|
| Department of Astronomy      | 16,965 |
| Office of Computing Affairs  | 175    |
| Division of Special Programs | 3,534  |

|                                   |        |
|-----------------------------------|--------|
| Group in Energy & Resources       | 139    |
| Institute of Governmental Studies | 744    |
| Institute of Human Learning       | 105    |
| Office of Institutional Research  | 3,579  |
| School of Journalism              | 278    |
| College of Letters & Science      | 10,322 |
| Office of Naval Research          | 417    |
| Radio Astronomy Laboratory        | 5,336  |

Table II Space Assignments in Evans Hall

|                                                  | ASF    |
|--------------------------------------------------|--------|
| Office of Computing Affairs                      | 26,712 |
| Center for Pure & Applied Math                   | 390    |
| Department of Economics                          | 5,026  |
| Computer Science Division of EECS                | 20,871 |
| School of Journalism                             | 7,207  |
| Department of Mathematics                        | 51,429 |
| Department of Statistics & Statistics Laboratory | 24,113 |
| Library                                          | 8,119  |

A number of space reallocations are either planned or under discussion for Evans Hall. The School of Journalism is scheduled to move to North Gate Hall (in Precinct 1), during the 1981-82 academic year, freeing up to 7,207 ASF for other uses. Reassignment of space currently used by the Departments of Mathematics and Statistics have been discussed by the departments and the campus administration. (Some reassignments, from Statistics to Computer Science, have already been made.) The details are not completely settled, but as much as 5,574 ASF could be available for reassignment. There is thus approximately 12,000 ASF available for reallocation to other units. The Department of Economics is assigned roughly 13,400 ASF in Barrows Hall (in the Humanities and Social Sciences precinct) and 5,000 ASF in Evans Hall. The possibility of reuniting Economics in Evans Hall has been under discussion for some time. The long standing separation of the two parts of the Department has been a considerable handicap to academic programs. Reunification, which has the Department's highest priority, should be effected at the earliest possible time, but is not feasible in Barrows Hall at the present. That building is already overcrowded and an additional reason for relo-

cating Economics into Evans, beyond the need to reunite Economics, is the need to free space in Barrows and, by secondary effects, in Dwinelle to help those overcrowded buildings. The interaction of a part of the Department with the mathematical sciences suggests Evans Hall as a logical location. But both the amount of space available in Evans Hall and its relative inaccessibility to the large number of undergraduates served by the Department preclude the total reunification of the Department there until there is an addition to Evans Hall or until other units (in addition to Journalism) move out. Plans are being finalized to relocate other units into the space to become available in Evans, to help reduce the problems in Barrows and Dwinelle on a short term basis, until additional space becomes available to effect a major improvement in those buildings.

The Phase I report includes a comparison of space assignments with the "Restudy Standards," standards that are used in Sacramento to calculate, for groups of academic disciplines, the number of ASF justified by their programs. We emphasize that the Restudy Standards are outmoded and, for many disciplines housed in this precinct, they are hopelessly inconsistent with the needs of a first-class university. The report of the Department of Statistics and the Statistics Laboratory, points out that there are no standards specially designed for Statistics, and that consequently no provision is made for the teaching laboratories and research space that are necessary in that discipline. This is only one example, however. In general, the Restudy Standards do not allow for the great increase in need for instrumentation that has developed in the sciences in the last decade or two, or for the extra facilities, such as increased number of fume hoods in chemistry, needed to meet current safety standards. In planning for the future it is important for the campus administration to recognize the discrepancy between the Restudy Standards and the real needs of instruction and research in a leading University.

### Problems and Needs

The major space-related problems confronting the precinct, which are documented in detail in the Phase I report, are the severe overcrowding in the College of Chemistry and a collection of problems associated with Evans Hall. The latter include badly designed and malfunctioning elevators; a shortage of space for some activities; severe traffic flow problems; poor building security; and inadequate telecommunications equipment, power and ventilation.

Until the mid 1960s, the size of the faculty of the College of Chemistry was limited by the available office and research space. The completion of Latimer and Hildebrand Halls made growth possible and the number of faculty FTE increased by 80%. However, partly because Unit III, the building planned for Chemical Engineering in the late 1960s, was never built, the College has again run out of space. There is literally no research space to accommodate new faculty members for which FTE have been allocated and no office space for them or for the visiting faculty and sabbatical leave visitors who are so essential to such a program. The College as a whole, and particularly the Department of Chemistry, has a remarkably healthy age distribution, but this increases the problem of providing adequate space for new faculty in the long run. Furthermore, the special space needs of Chemical Engineering for research and instruction have never been met.

The Evans Hall problems arise in large part from the rapid growth of student interest in computer science and the increased dependence of the Campus on computers for applications in instruction, research and administration. The Division of Computer Science has grown rapidly in response to student demand and is expected to grow by an additional five faculty FTE in the next five to ten years. The Division is already cramped and additional research and office space for faculty and graduate students is an obvious necessity in the near future. This, and increases in the number

of undergraduate majors and in the number of students in other disciplines seeking to acquire "computer literacy" makes expansion of the facilities imperative. The Department of Statistics also has unfilled faculty FTE and impending additional retirements. The problems of traffic flow between floors and building security problems in Evans Hall are a consequence of the need for 24-hour access to the computer facilities by a large number of users. The design of the building does not accommodate this need as it exists today. The ground floor, which is occupied entirely by classrooms, was also not designed to accommodate the large volume of traffic generated by that use.

In most of the buildings in the Precinct, even the newer ones, there is a desperate need to make up for years of poor maintenance or total neglect. In the older buildings, some rooms and most corridors are badly lit, dingy and in need of repair. In almost all of the buildings, there is damage to plaster and ceiling tiles from both leaking roofs and leaking plumbing. The deterioration of the buildings has accelerated in recent years as the University's budget has fallen further and further behind in relation to costs; deferred maintenance projects that once had a chance of being scheduled in the foreseeable future must be postponed indefinitely. For similar reasons, the standards of janitorial service have seriously declined.

There are a number of areas in which seriously unsafe conditions exist, either as a consequence of faults in the original design or of changes from the originally planned use of space. These are documented in the Phase I report and listed later in this report. They include, for example, the large panes of glass on the Birge-LeConte "bridges" which could shatter and fall onto walkways below in the event of an earthquake, lack of emergency lighting in stairwells and corridors in several buildings including Evans Hall, and the inadequate exits from the first floor of Campbell Hall, now the location of L & S offices serving large numbers of students.

TABLE III Precinct 2 Classroom Availability and Needs

| <u>EXISTING CLASSROOMS</u> |                  |                                          | <u>NEED FOR CLASSROOMS BY ACADEMIC UNITS <sup>+</sup> (HRS/WK)</u> |         |         |       |            |       |       |              |         |        |
|----------------------------|------------------|------------------------------------------|--------------------------------------------------------------------|---------|---------|-------|------------|-------|-------|--------------|---------|--------|
| No. of Rooms               | Seating Capacity | Room <sup>++</sup> Availability (hrs/wk) | Total                                                              | Astron. | Chem E. | Chem. | Comp. Sci. | Econ. | Math. | Molec. Biol. | Physics | Stats. |
| 0                          | 1000             | -0-                                      | 3                                                                  |         |         |       |            | 3     |       |              |         |        |
| 1                          | 500              | 32                                       | 22                                                                 |         |         | 7     |            |       | 4     |              | 11      |        |
| 1                          | 300              | 32                                       | 26                                                                 |         |         | 7     | 3          | 6     | 7     |              |         | 3      |
| 1                          | 250              | 32                                       | 28.5                                                               |         |         | 4.5   |            | 3     | 15    |              |         | 6      |
| 3                          | 200              | 96                                       | 72.5                                                               | 6       |         | 6.5   | 12         |       |       |              | 48      |        |
| 1                          | 150              | 32                                       | 69                                                                 |         | 1.5     | 17.5  | 12         |       | 4     | 4            | 30      |        |
| 4                          | 100              | 128                                      | 52                                                                 | 3       |         | 20.5  |            | 6     | 6     | 7.5          | 6       | 3      |
| 2                          | 75               | 64                                       | 72                                                                 | 2       | 15      |       | 22         | 18    |       |              |         | 15     |
| 20                         | 26-50            | 640                                      | 638                                                                | 19      | 26      | 40    | 49         | 147   | 225   | 5            | 57      | 70     |
| 19                         | 0-25             | 608                                      | 673.5                                                              | 13      | 59.5    | 42    | 33         | 123   | 126   | 11           | 225     | 41     |
| Totals                     |                  |                                          | 1656.5                                                             | 43      | 102     | 145   | 131        | 306   | 387   | 27.5         | 377     | 138    |

\* Based on 32 hours/week of classroom utilization, the actual campus average for Spring Quarter 1980, but somewhat below average for a typical Fall Quarter.

<sup>+</sup> Only classrooms assigned by the OAR are included

There are a number of areas in which space could be put to better use if proper renovations were made. Examples include the top floor of Stanley Hall where changes in the research program have left the facilities as they were originally designed unsuitable for current applications, and the attic of Birge Hall which was never provided with proper access. In some cases, changing safety standards also requires renovation of facilities. The most conspicuous examples are related to the handling of hazardous chemicals. Better understanding of the long-term effects of exposure to various chemicals has led to substantial changes in standards for safe laboratory practice. To some degree, the need for improved ventilation and special facilities for handling hazardous substances has been met by capital improvement projects, but substantial improvements are still needed, parti-

cularly in Gilman and Latimer Halls. In the case of Latimer Hall, the improvements in the ventilation system needed for safety might also produce substantial energy savings.

Classroom assignments are a source of irritation to the faculty and students of every department in the precinct. Many classrooms were designed to meet the special needs of the departments in them - e.g., special blackboards, lighting and seating for Mathematics and Statistics, and special facilities for demonstrations in Chemistry, Physics, and Molecular Biology. The classroom assignments by OAR do not give the attention deserved to the special requirements of teaching in these disciplines or the desirability of scheduling classes close to the offices and laboratories of the faculty and students involved.

Classes for a given department are frequently held in unsuitable classrooms in a remote part of the campus, while classes that do not need the special facilities available in the classrooms of the precinct are scheduled in them. Faculty members have been forced to choose between carrying bulky demonstration equipment to far corners of the campus or omitting valuable lecture demonstrations. In one case, an irreplaceable enzyme model was damaged beyond repair in the process of being transported. Evidently, a class is automatically reassigned to the same room year after year unless a change is requested. And when a change is requested, that room, at that hour, may be assigned to a department outside the precinct with little chance of its early recapture by the departments of the precinct. Table III displays a comparison of classroom availability and classroom

Table IV Use of Precinct 2 Classrooms by Precinct 2 Departments\*

| Department           | Number of Classes<br>per Quarter | Number of Classes<br>per Quarter Sched.<br>Outside Precinct | Percent of Classes<br>Scheduled Outside<br>the Precinct |
|----------------------|----------------------------------|-------------------------------------------------------------|---------------------------------------------------------|
| Astronomy            | 28                               | 15                                                          | 50                                                      |
| Chemical Engineering | 60                               | 0                                                           | 0                                                       |
| Chemistry            | 59                               | 8                                                           | 14                                                      |
| Computer Science     | 45                               | 34                                                          | 76                                                      |
| Economics            | 178                              | 158                                                         | 89                                                      |
| Mathematics          | 349                              | 62                                                          | 17.8                                                    |
| Molecular Biology    | 5                                | 3                                                           | 60                                                      |
| Physics              | 211                              | 20                                                          | 9                                                       |
| Statistics           | 46                               | 18                                                          | 39                                                      |

\*Only classrooms assigned by OAR are included.

needs for a typical quarter for the precinct. Table IV shows the degree to which the needs are met by classrooms in the precinct for the Fall Quarter of 1980. In fact, Table IV underestimates the problem for moderately large lecture courses, those requiring seating capacity of 50 to 100 (which are in short supply all across the campus). These courses are assigned to classrooms outside the precinct with greater relative frequency than the average for all classes reported in the last column of Table IV. It is, of course, quite reasonable to assign classes of the Department of Economics outside the precinct, and no detailed investigation of the scheduling difficulties created by particular departmental requirements has been made, but Tables III and IV strongly suggest that the classroom needs of the precinct could be met within the precinct if the scheduling procedure were improved.

There are three branch libraries in the Mathematics and Physical Sciences precinct - the Chemistry Library (11,025 ASF) in Hildebrand Hall, the Physics Library (4,833 ASF) in LeConte Hall, and the Astronomy, Mathematics, Statistics and Computer Science Library (8,119 ASF) in Evans Hall. In each there is a pressing need for both space and funds for modern equipment to provide access to new information technology and to safeguard the book and journal collections. The incidence of book theft has led to restrictions on access to the collections at times when no librarian is present. Since the number of hours that the libraries can be staffed is limited by the library budget, the book collections and, to some extent, the journal collections are less accessible than they should be. Access to the collections by the handicapped is also inadequate.

## RECOMMENDATIONS

Recommendations are organized into three sections. The first section contains mainly recommendations for the construction of new buildings or additions to buildings and for major reassignments of space, but several recommendations for improvements to Evans Hall are included because the discussion of Evans Hall in that section is relevant to them; the second section includes other recommendations that affect the precinct as a whole or at least a number of major units; the recommendations that affect a single unit, and most that pertain to a single building, are listed in the third section. Additional discussion of the conditions and considerations underlying the recommendations is included in the first two sections. The justification for most of the recommendations of the third section is fully described in the Phase I report or in the statements from the individual units and, except in a few cases in which additional emphasis is warranted, it is not repeated here.

The recommendations are listed sequentially through the first and second sections, but the order assigned does not represent priority. In the first section, where there are alternative recommendations, the sequence does represent the order in which the recommendations should be considered. The recommended changes in space assignments and new construction are all urgent and deserve the campus' highest priority, but they are necessarily long-term projects. The decisions as to which alternatives will be pursued, however, must be made early because they affect the planning and execution of other projects that are also urgent but smaller in scale and which should be carried out as soon as possible. The recommendations in the second section are independent of each other, but one of them, the recommendation for further study of the proposal to consolidate the three branch libraries in the precinct, should be implemented as rapidly as possible because a decision to consolidate the libraries would require

major renovations which should be coordinated with other new construction in the precinct.

In the third section the recommendations are grouped by building or academic unit or both. They are assigned one of two priorities by the letters A or B in parentheses following the number of the recommendation within the group. Only important renovations and changes are listed, but those for which there is a greater urgency are assigned the A priority.

### Recommendations for Construction of New Buildings or Additions to Buildings and for Major Reassignments of Space

Within precinct 2 there is a clear need for additional space for the College of Chemistry and for units housed in Evans Hall. The College of Chemistry is already overcrowded; there is no space for new faculty recruitment, and the situation will become even more difficult as the College enters a period of steady state retirements. In Evans Hall there would be an immediate shortfall of about 6,000 ASF if the Department of Economics were reunited there. There too, the space shortage would grow with time. There are unfilled faculty FTE in Statistics; the Division of Computer Science is scheduled to grow in size to accommodate increasing student demand; there is both a long- and a short-term need for additional centralized computing capability under the Office of Computing Affairs; and there is considerable potential for growth of the Center for Pure and Applied Mathematics. Furthermore, the T-buildings are in a state of serious disrepair and attempts at rehabilitation and continued maintenance would be wasteful of resources in the long run. Their occupants should be relocated to permanent buildings and the T-buildings demolished as soon as possible, as recommended in the Phase I report. There is thus a need for substantial additional space - of the order of 100,000 ASF - for precinct 2 units, including the T-building occupants and the whole of the Economics Department, but not the School of Journalism.

Apart from the construction of new buildings or additions to buildings in precinct 2, two possible contributions to meeting the space needs of the precinct have been discussed. The precinct 1, Phase II report proposes that an addition to Etcheverry Hall be constructed in which to relocate the Division of Computer Science. However, an addition to Evans Hall that would allow Computer Science to remain in that location would be another solution to the problem of providing space for all the Evans Hall units, including Computer Science. This alternative has the advantage of being more central and therefore more accessible to large numbers of students. Also, it is logical to foster interactions between computer scientists and applied mathematicians by proximity of location (which is achieved without any greater separation of Computer Science from the hardware side of the Department than would exist for any of the locations that have been discussed for Computer Science). Furthermore, this solution would provide greater flexibility for possible adjustments in use of space to accommodate to changes in computer equipment in the future by retaining the proximity of the Division of Computer Science to the Office of Computing Affairs. Finally, an addition to Evans Hall would also provide a better opportunity to correct some of the other problems in that building. The other proposal that would provide space for new uses in existing buildings in the precinct, which the precinct 2 task force does support, is the relocation of MBVL to a new biology building. That move would be highly desirable in itself, as discussed above, and could also make a significant contribution to solution of the space problems in precinct 2. Thus, the precinct 2 task force concluded that MBVL should be relocated to a new biology building located in the Agriculture and Life Sciences precinct, that the released space should be used in the most effective way possible to meet some of the space needs of the other units in the precinct, and that the remaining space needs of those units, including Economics and Computer Science, should be met by new construction within the precinct.

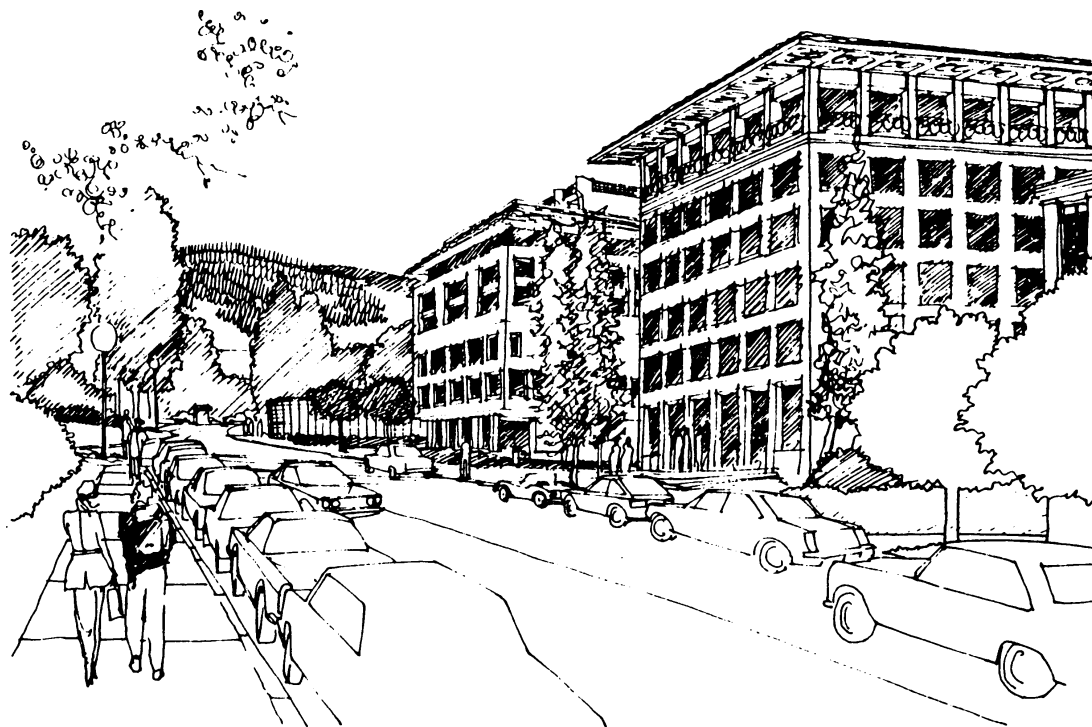
The space released in Stanley Hall, if MBVL does move, would be less suitable for the Department of Chemical Engineering than for some of the present Evans Hall units. It would require more complicated, and therefore much more expensive, renovations to provide the necessary specialized research space for chemical engineering, and the location of Stanley Hall, on the other side of University Drive from the rest of the College of Chemistry, would disrupt interactions and collaborations, and limit the sharing of facilities with the Department of Chemistry as well as with the elements of the Department of Chemical Engineering that would remain in Gilman Hall. Furthermore, there is likely a better chance of obtaining a substantial amount of private capital for a chemical engineering building than for a computer science building (whatever its location), given the commitment of the College of Engineering to fundraising for other projects. Therefore, the College of Chemistry's need for space should be met by construction of a new building, and, if space can be freed in Stanley Hall, it should be used to relieve overcrowding in Evans.

#### Recommendation 1

The building requested by the College of Chemistry, to be used largely by Chemical Engineering and thereby corresponding to the Unit III in the campus building plan of the 1960s, should be approved as soon as possible at the level necessary to permit the College to mount a fund-raising drive. The building should be planned for the area to the west of Latimer Hall and north of Gilman Hall, taking into account parking and traffic problems in the area and also the desirability of creating an open, level area linking the Hearst Mining Circle with the corridor between Gilman and LeConte Halls.

#### Recommendation 2

The campus should move MBVL to a new biology building if provision of the necessary facilities becomes feasible. It is imperative, however, that the decision be



#### **NEW BUILDING FOR THE COLLEGE OF CHEMISTRY**

made relatively soon because of its implications for short- and long-term plans for Evans Hall.

The choice of Evans Hall units for relocation to Stanley Hall is difficult. From the point of view of present and projected space needs, Computer Science is an ideal candidate in that it is expected to grow to a size that would use the whole building, but that relocation would have some of the same drawbacks as an Etcheverry Hall location. Economics, which would use roughly half of Stanley Hall, is the most logical candidate for relocation to that building. Members of the Department now in Evans Hall have interactions with math-

ematicians and statisticians and use the Evans Hall branch Library, but for the Department as a whole, such interactions and use of the library are less important than for any other unit now in Evans Hall. However, for the immediate future, it is evidently not possible to move the rest of the Department from Barrows to Evans and even if it were, the competition for space in Evans would become impossible to deal with as Computer Science and Computing Affairs continue to develop. Furthermore, it seems probable that the Department would prefer to await the availability of space in Stanley or elsewhere rather than achieve reunification by a series of repeated and piecemeal moves.

### Recommendation 3

If the recommendation to relocate MBVL is accepted, the Department of Economics should be reunited in Stanley Hall when it becomes available. Whether the reunification of Economics is ultimately in Stanley Hall or an enlarged Evans Hall, any further interim moves of the Department from Barrows to Evans should consider the space needs of all Evans Hall units; and after that, the wishes of the Department should be considered as well.

The selection of other Evans Hall units for relocation to Stanley Hall will require consideration and consultation with the units, beyond what was possible for the task force in the time available to it. (One possibility considered was the relocation of the Evans Hall input-output (I/O) facilities and user terminals to a contiguous area on the ground floor of Stanley Hall. This could be arranged to eliminate some of the difficulties related to the present locations of these facilities in Evans, but the idea was rejected on the basis of probable technical difficulties and the adverse effect on the activities of the Office of Computing Affairs by further fragmentation of their facilities.) The best possible use of the remainder of Stanley Hall seems to be to provide a more permanent location for occupants of the T-buildings and for some units (such as SESAME, the Office of Naval Research (ONR) and Environmental Health & Safety (EH&S)), the relocation of which would provide modest but needed expansion or improved facilities for them or their neighbors.

### Recommendation 4

After the needs of the Department of Economics are met, the rest of Stanley Hall should be used to accommodate SESAME, ONR, EH&S, and, to the degree possible, occupants of the T-buildings. T-4 in particular should be vacated to make room for an addition to Evans Hall.

If the Department of Economics is relocated from Evans Hall, the total amount of space available in the building will accom-

modate some, but not all, of the expected long-term growth of the remaining units. Furthermore, without major reconstruction, there seems to be no way of meeting the need for expanded service areas for computer users without aggravating the already severe problems of access and building security (nor could those problems be alleviated without major changes even without that expansion). It is also important to correct as many as possible of the other Evans Hall deficiencies as soon as possible. For example, the greatest single defect in the building is no doubt the elevator system which has wasted thousands of hours of time and caused continuous frustration for the building's occupants. The entire control system should be replaced with modern equipment that, we are told, would increase the effective capacity of the three south elevators by 25%. This is no doubt the most urgently needed improvement, but others are not far behind. Some of the necessary improvements are largely independent of the details of space assignments and are considered later, in section 3. Others, however, need to be coordinated with changes in space assignments and with the plan for the addition.

### Recommendation 5

A detailed plan should be developed for Evans Hall on the assumption that Economics will relocate from the building and that an addition to Evans Hall will be constructed to accommodate growth of the other Evans Hall units. The addition should be on the west side, partly underground, and designed to continue the open corridor around the Campanile to the north. The plan should include projections of space assignments to the extent necessary to plan improvements in utilities and to correct the traffic-flow, building security and access problems. Specifically, it should include: improvements in the elevator control system; a continuous area for I/O devices and user terminals in the basement level to the west of the computer area, arranged so that 24-hour access can be provided without breaching the security of the rest of the building; a freight elevator

to provide direct access to the computer area; improvements in the ventilation, cooling, telecommunications, and power supply systems where needed either for equipment or users (see the Phase I report and unit statements); and improvements in the access to classrooms on the ground floor - these should be considered in connection with access to the Bechtel Center.

The plan should be implemented by a series of capital improvement projects designed to provide improvements in each of these areas as soon as practical. For example, an improved elevator control system is probably less dependent on detailed space assignments than any of the other improvements considered here, and it should be provided as soon as possible. The freight elevator, however, would have to be considered in relation to the building addition, and it might or might not be practical to install it separately in the existing building. Some of the improvements in utilities could be undertaken as soon as projections of space assignments have been made. The Evans Hall units should be fully consulted throughout the whole process.

If MBVL is not relocated and Stanley Hall or other space does not become available to accommodate the overflow from Evans Hall, the Evans Hall addition will have to be large enough, as a minimum, to accommodate the Department of Economics as well as meet the other needs covered by recommendation 5.

### Recommendation 6 (Alternative to Recommendations 2-5)

A major addition to Evans Hall, on the west, should be constructed. It should be planned to accommodate the growth of the Evans Hall units for the foreseeable future and the reunification of the Department of Economics. It should be partly underground, not extend above the first floor of Evans and designed to extend the open corridor around the Campanile to the north. Plans for other improvements in Evans Hall should be made and implemented as specified in recommendation 5.

### Other Recommendations Affecting the Precinct as a whole

Consolidation of the three libraries would produce certain efficiencies in operation that could, if the library's budget remained constant, be translated into improved service. It would also reduce the convenience of the libraries to some users by removing the libraries, at least in some cases, from the buildings in which the users work. Other effects on user accessibility would be mixed - the library might not be accessible to graduate students, who now have access at all times, when the library is "closed," but "open" hours would be longer, so other users who are not now given keys might benefit. Consolidation would also require a substantial capital outlay to create a single area large enough for the consolidated library (24,000 ASF) and to convert the released space to other uses. The members of the task force tended to be opposed to consolidation of the libraries and reported that the majority of faculty in their units would probably also be opposed, but recognized that these opinions were based on incomplete information on the effects, good and bad, of consolidation.

### Recommendation 7

The library staff should be invited to prepare a detailed estimate of the effect of consolidation on services that could be offered (hours of operation, book security systems, equipment for computerized catalog searches and literature searches, etc.). If possible, it should also address the question of possible sites for the consolidated library. This statement should be circulated to the affected departments to provide a basis for full faculty consultation. A decision on consolidation of the branch libraries should be made at a later date on the basis of the departmental responses as well as the library's statement. This decision should, however, be made as soon as possible so that if library consolidation is recommended, the question of location can be considered in connection with other major space requirements in the precinct.

If it is decided to retain the three separate branch libraries, a number of deficiencies in them will have to be corrected and, in any case, better provision for security of the collections and for new information technology must be made.

### Recommendation 8

Public service areas in the library or libraries should be designed and equipped to use modern technology for information retrieval and book security. If the branch libraries are kept separate, the receiving, sorting and holding areas should be improved; fire sprinkler systems installed in the Evans and LeConte libraries; ventilation and heating problems in the Hildebrand and Evans libraries and the acoustical problems in Hildebrand corrected; and access for the handicapped to the mezzanines provided.

The evidence presented in the first part of this report suggests that improved classroom scheduling could better serve the needs of the precinct's departments.

### Recommendation 9

OAR should make every reasonable effort to accommodate the classroom needs of the departments of the precinct within the precinct and in the classrooms with special facilities designed for them. Advance consultation with the departments on the effects of section size on scheduling of classes and computerized scheduling are reasonable procedures, if necessary to achieve these ends.

### Recommendation 10

The vehicle traffic and parking problems in the vicinity of the east entrance to the campus detract significantly from the quality of the environment.

An improved passenger loading and unloading area should be provided on Gayley Road. The guard station should be moved closer to Gayley Road and an effective system developed and employed for recognizing unauthorized vehicles and keeping

them off the campus. Most visitors should be directed to off-campus lots or structures. The removable barriers installed near Birge, LeConte, Gilman and Hildebrand Halls to keep vehicular traffic out of pedestrian areas should be used for that purpose.

### Other Recommendations for Individual Buildings

#### Campbell Hall

Astronomy and Radio Astronomy Laboratory

(A) Acquire approximately 750 ASF for self-paced undergraduate Astronomy 7S and 10S tutoring and testing center, since enrollment has swollen beyond existing room capacity. Recommended new space is Rooms 47 and 47A in Campbell basement, if acceptable replacement space is found for present occupants (Office of Institutional Research).

(A) Correct ventilation problems causing health hazards (excessive heat, insufficient circulation and oxygen levels) in basement Rooms 59, 11, 11A and 47B, all of which are actively used for shops, student labs and offices, plus photo labs in Rooms 644 and 716A.

(A) Install emergency lights to indicate exit routes in basement student lab and all hallways - areas which are totally dark when lights are off.

(A) Replace section of Campbell roof (portion within parapet walls) which leaks every winter into offices below. Since this roof receives heavy foot traffic, it should be surfaced with a permanent, heavy duty substance such as tile. Periodic treatment with liquid compounds has proven totally inadequate.

(A) Determine and correct source of water damage (possibly roof) along entire interior south wall of Campbell.

(A) Repair or replace elevators. Only one of two has worked for months at a time, and occasionally it is out of service as well.

(B) Repair plaster cracks throughout interior walls.

This unit appears likely to generate substantial additional space requirements in Campbell Hall during the next decade.

In the event recommendation 2 of section 1 is implemented, a solution to the additional needs of the Division of Special Programs and the possible future needs of Astronomy would be a move of DSP to alternative space, possibly Stanley Hall, freeing the resulting 3,500 ASF for the expansion of Astronomy. If alternative space cannot be found earlier, movement of ONR to Stanley Hall to permit the relocation of OIR is recommended.

#### College of Letters & Science

(A) Move west wall of 102 Campbell ten feet into the lobby, adding 140 ASF to space available for transfer evaluation staff and records.

(A) Finish 140 ASF of remaining lobby area as auxiliary student waiting facility in peak periods of use of Room 113 Campbell when waiting area is inadequate. An alternative would be to rebuild Campbell Hall Annex to extend to the west wall of Room 113 Campbell, relocate student advising offices to the new annex and use Room 113 as student waiting room. Enough additional space in the new structure would be required for present Computing Affairs key-punching facilities.

(B) Make modifications in Rooms 106 and 112A Campbell to improve working conditions.

(A) Install fire escape on west wall of building to provide an additional west exit from Room 113. This seems particularly important in view of overcrowding of the west corridor during peak usage periods of Room 113 Campbell.

#### Office of Institutional Research

(A) Implement relocation described in OIR report provided that alternative space can be found for the ONR and the Computing Affairs storage facility.

(B) Create a joint tape storage facility with Division of Special Programs in Room 47B Campbell Hall.

(A) Improve ventilation of rooms.

(A) Install emergency lights in upper hallway basement and stairway.

(A) Modify exterior drains to alleviate flooding.

(B) Repaint upstairs offices.

(B) Noise pollution abatement: resolve blower noise problem and relocate garbage facility.

(B) Relocate electrical equipment on the north wall of Room 47B Campbell to the building core.

(B) Relocate electrical outlets and remove obsolete wiring.

#### Division of Special Programs

(B) Provide an additional office for associates in Western Civilization and Mass Communication courses.

(B) Convert Room 344 Campbell into student lounge.

(B) Provide a temperature controlled environment of 360 ASF for film library storage.

#### Office of Naval Research

(B) Provide additional space to relieve present crowded conditions.

#### Latimer Hall (College of Chemistry)

(A) Continued additions of individual fume hoods and ventilation supplies are in order, but it is also important that the

fume hoods and ventilation in Latimer be studied as a system, expanded, and overhauled. Such a project could probably accomplish a substantial energy savings.

(A) An engineering study should be made of the fume hood and ventilation system, giving particular attention to ways of expanding it and at the same time being more energy conservative. Needs include tripling the capacity on the third floor, supplying some capacity to the fourth floor, and doubling the capacity on all four upper floors.

(A) Custodial service throughout Latimer should be upgraded.

(B) The heating system in Latimer should be improved and made more reliable.

#### Hildebrand Hall (College of Chemistry)

(A) To meet the immediate space needs of the College of Chemistry, undergraduate laboratories and their service areas on the third floor must be converted to research space.

(A) Repair leaks in the roof and in the plaza above the B level.

(B) In the Hildebrand library, handicapped access to the stacks and a security system against theft are both needed.

(B) An emergency power system should be provided so as to enable pump-out of water from the D level in the event of major flooding.

#### Environmental Health and Safety

(A) Proper space, meeting current safety standards should be provided for Environmental Health and Safety in Hildebrand Hall. If the long-term plan is for reassignment to Stanley Hall (recommendation 4), a temporary location meeting those standards should be provided.

#### Lewis Hall (College of Chemistry)

(A) The appearance of the hallways should be upgraded through a general

painting, improved lighting, and new and lighter floor tiles.

(A) The continuing problem of leaks from the roof and the down-spout system should be corrected.

(B) Loose and missing ceiling tiles should be replaced.

(B) The hood capacities of the basement and top floors should be increased.

(B) Fire and safety code improvements outlined in the Phase I report should be implemented.

#### Gilman Hall (College of Chemistry)

(A) A painting of the interior throughout is severely needed. The general appearance of the hallways should be upgraded through a general painting, improved lighting, and new and lighter floor tiles.

(A) Leaks in the roof, walls and building plumbing should be eliminated.

(A) Additional hoods and associated ventilation should be provided. A particularly needy area is the extreme north end of the building, which requires a new, large air duct.

(B) The water supply (purified and city water), sewer and building plumbing systems should be upgraded.

(B) Radiators in this building are of an outmoded design, do not function well and need replacing.

(B) Classroom 219 should be renovated according to the recent plan.

(B) The fire safety factors noted in the Phase I report should be corrected.

#### Giauque Laboratory (College of Chemistry)

(A) This building has been used mainly for high-magnetic-field research. Although its middle-term use is unsettled, this occupancy will continue for the im-

mediate future. Any alternate uses are complicated by the very specialized design of the building, particularly with regard to ventilation and room shapes. Regardless of the ultimate use, however, the heating and ventilating system must be improved. The present system has never worked properly; it creates intolerable working conditions and interferes with the operation of instruments.

#### Physical Sciences Lecture Hall (Educational TV Office)

(A) The suspended black and white TV monitors should be replaced with new-technology projectors.

#### Evans Hall

The need for a number of improvements in this building is particularly urgent. Those that should be considered in connection with possible additions to the building have been listed in recommendation 5. The following are additional.

(A) Install emergency lighting in stairwells and exit corridors.

(A) Improve custodial service.

(A) Repair leaks and water damage.

(B) Provide emergency power supply for equipment as needed.

(B) Improve lighting in corridors.

(B) Expand air conditioning system for computer room to provide adequate margin and back-up.

(B) Modernize TV display units in Rooms 10 and 60.

#### Birge Hall (Department of Physics)

(A) The large panes of glass in the breezeways between Birge Hall and LeConte Hall should be supported to prevent large amplitude oscillations observed during earthquakes.

(A) A second stairway and an elevator should be installed between the fifth and sixth floors of Birge Hall. This improvement would provide better and safer access to the attic rooms which could then be utilized more effectively.

(A) Custodial and maintenance service must be improved to create a reasonable working environment and to reverse the accelerated decay of the structure. For example, since the building was constructed, dripping pipes and valves have caused floor tiles to crack and disintegrate creating a safety problem.

(B) The large underground vault (Room B109A) should be converted into functioning laboratory space.

(B) All ground floor building doors need replacement since they frequently malfunction and offer poor security to the building when it is presumably locked.

#### LeConte Hall (Department of Physics)

(A) An improvement of custodial and maintenance service is greatly needed in LeConte Hall. Standards of cleanliness and sanitation should be established and preserved. Citing only two maintenance examples: a public drinking fountain has been out of order for three years even though the malfunction was reported yearly; a roof leak (into Room 301 LeConte) during the rainy season has persisted seventeen years even though it was reported and "corrected" annually.

(A) The glassblowing shop is in need of renovation to improve lighting and ventilation to meet safety standards. At the same time modernization of facilities to incorporate sample preparation and evaporation coating will greatly improve the functioning of the glass shop.

(B) The main machine shop in Rooms B1, B2, B3, B4, B5 and B6 LeConte requires improved lighting and ventilation to bring working conditions up to reasonable standards.

(A) Emergency lighting should be installed in all totally dark lecture rooms to prevent panic from power failure or other catastrophic events.

All washroom fixtures need adjustment and preventive maintenance. A large percentage of the facilities do not work or have been taken out of service by "do not use" signs. Missing and loose appliances exist in nearly every washroom.

#### Stanley Hall (Molecular Biology and Virus Laboratory)

(A) Improve space on the fifth floor. There is a minor capital improvement proposal (1982-83) to open up the "rabbit warren" of small rooms and renovate the space for use by a professor who requires high levels of radioactivity in his research. His move from the second to the fifth floor will reduce the hazard to building personnel.

(A) Improve space on the third floor. There is a minor capital improvement proposal (1981-82), still unfunded, to convert an animal room into a small laboratory for an emeritus professor presently occupying second floor space committed to a new faculty appointee.

(A) Modify space on the second floor (Room 222 and 230) for a newly appointed full professor, due here in the fall 1982, and for another professor (Rooms 235 and 236) who will trade his space to the professor to move to the 5th floor.

(B) Maintenance: fix tiles on floor; put phone in elevator; repaint most rooms; fix leaks; repair ceiling of cold room (Room 515); connect lines to cooling tower on roof.

(B) In the future, Molecular Biology may make increasing use of live animals and may need to convert the rooftop greenhouse into an animal facility.

#### PHASE II - PRECINCT 2 RESPONSE

In Phase I of the Berkeley Campus Space Plan, the Campus Space Resources Survey, the buildings of precinct 2 were the subject of an intensive study. The report of that survey constitutes a catalogue of the available space in the precinct and its distribution among the various academic and service units. The general quality of the space is described and shortcomings in the areas of safety, standards of maintenance, convenience, appearance, adequacy of utilities including ventilation, etc., are documented building by building and in considerable detail. The report includes suggestions for some of the more obviously needed changes and improvements, but it is primarily an inventory of the space as it exists.

The Phase II study, the results of which are presented here, was based on the Phase I report, on information on planned growth of units supplied by the campus administration, on statements from the individual units on expected future growth and changes in programs and their impact on space needs, and on discussions between the members of the task force. The emphasis is on recommendations for correcting deficiencies, both those noted in the Phase I report and others recognized by the task force, and for accommodating the future needs of units in the precinct.

The Phase II report is in three parts. Part I is a statement of background and a description of problems. Part II is the collection of statements from individual units. Part III is a series of recommendations. Part I is to some degree a brief recapitulation and summary of the types of deficiencies noted in the Phase I report, but it includes a description of other problems with which the units of the precinct have to contend that are not a consequence of the physical state of the building alone. It also provides more background related to some of the recommendations that emerged from the discussions of the task force. Part II consists of the reports of individual units of the Precinct. It

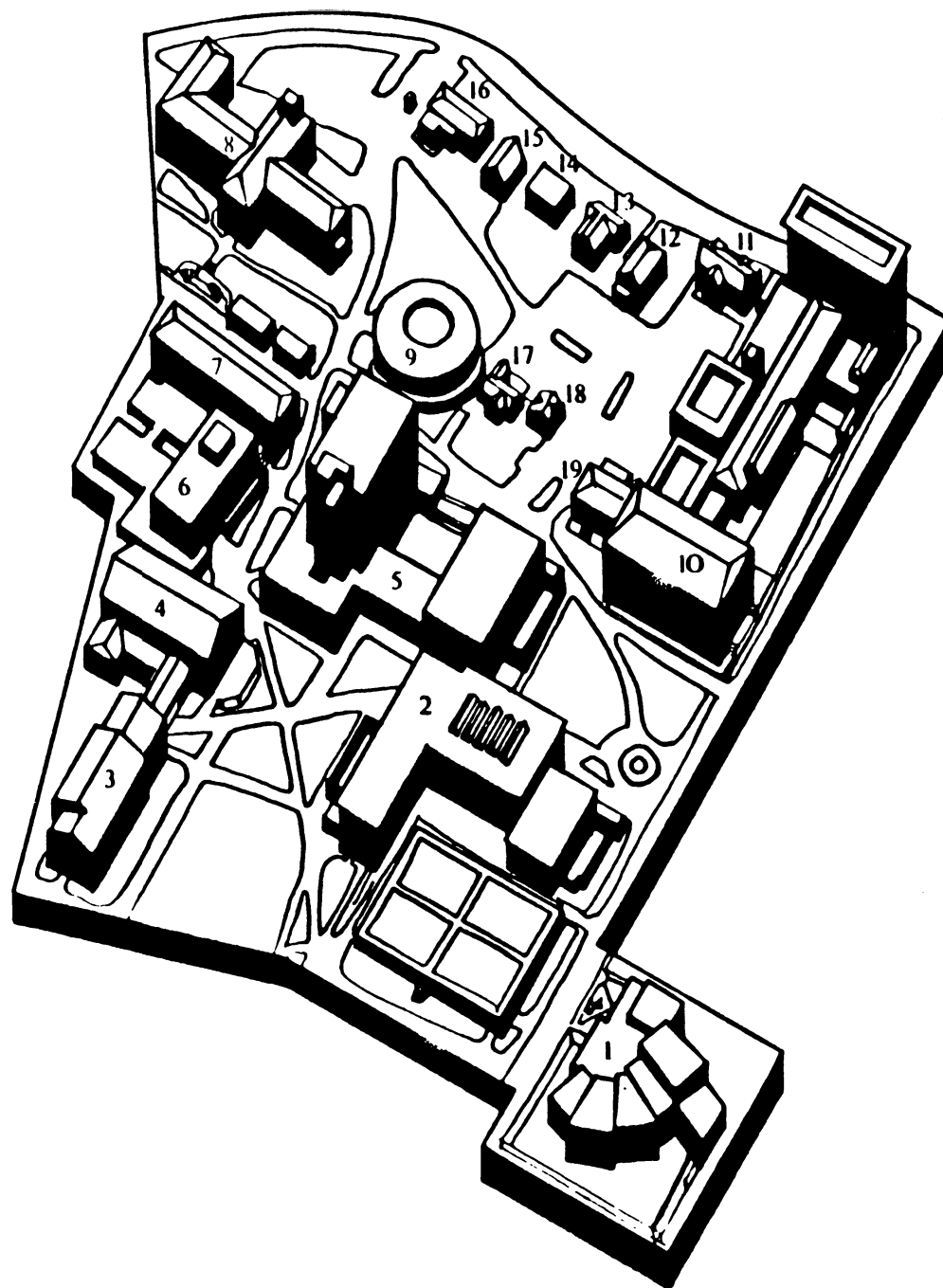
includes, where relevant, discussion of the effect on departmental planning of changes in the demand for graduates in the job market and in student demand for instruction, projections for growth in numbers of faculty and students, descriptions of the impact of changing programs on space needs, and discussions of special problems facing the units. Part III is a complete list of the recommendations made by the task force, including in some cases alternative recommendations, and further discussion of the conditions and reasoning behind the recommendations.

Part II is not included here but can be found in the full text of the task force report.

# Art, Music and Professions

## Phase I Precinct 3 Overview

1. University Art Museum
2. Kroeber Hall
3. Morrison Hall
4. Hertz Hall
5. Wurster Hall
6. Minor Hall Addition
7. Minor Hall
8. Cowell Memorial Hospital
9. Calvin Laboratory
10. Law Building
11. 2240 Piedmont
12. 2234 Piedmont
13. 2232 Piedmont
14. 2224 Piedmont
15. 2222 Piedmont
16. 2220 Piedmont
17. 2241 College
18. 2243 College
19. 2251 College





## PHASE I - SURVEY

### PRECINCT 3 OVERVIEW

#### Art, Music and Professions

##### Buildings and Landscape

The Art, Music and Professions precinct of the Berkeley campus is located at the southeast corner of the central campus. Except for the University Art Museum across Bancroft Way, the area lies within the confines of the central campus bounded by Piedmont Avenue to the east, Bancroft Way to the south, Hearst Gymnasium and North Field to the west and Faculty Glade and the Faculty Clubs area to the north.

No single theme unites the disciplines of the precinct. Grouped under Art are the Music and Art Departments, the University Art Museum, the College of Environmental Design, and the Lowie Museum of the Department of Anthropology. Because both are professional schools with an interdisciplinary link in environmental law, the Law School and the College of Environmental Design are related. Optometry is also a professional school sharing certain of its research interests with Environmental Design, and with Chemical Biodynamics, while serving the needs of a large clinical population as does the Student Health Service. Calvin Laboratory, occupied by the Laboratory of Chemical Biodynamics, is thematically unrelated to its neighbors. The same is true of some of the units in the nine former residences along Piedmont Avenue and behind Wurster Hall where College Avenue formerly ran. Finally, although the Lowie Museum and the University Art Museum are related, the social science oriented areas of Anthropology have little disciplinary connection with the major activities of the precinct.

This diversity of disciplines is reflected in the precinct's architecture and landscape. Wurster Hall with its ten story tower, the home of the College of Environmental Design, dominates the precinct at its geographical center. The Law Building complex, which includes Boalt Hall and provides space for the School of Law, the Law

Library and the Earl Warren Legal Center, as well as dormitory space (Manville Hall) for Law students, occupies the southeast corner. Together with Kroeber Hall (housing Anthropology, the Lowie Museum of Anthropology and Art-Practice) and Wurster Hall, the Law complex forms a large open quadrangle at the end of College Avenue. This has become a major pedestrian entrance to the campus as well as an activity node, with the Class of 1914 Fountain serving as its focal point. In general this area lacks visual coherence.

The University Art Museum is further west across the street from Parking Structure B, and has a tenuous physical relationship with the other buildings in this precinct. Further into the precinct the smaller buildings of the Music complex (Morrison and Hertz Halls) begin to relate in scale to the natural areas along Strawberry Creek and to the Faculty Clubs complex. A second large quadrangle is formed by Hertz, Kroeber and Wurster Halls overlooking North Field to the west. This space is the only other distinctive piece of open landscape and contains a secondary node at the west entrance to Wurster Hall. This space serves as a major circulation crossroads and is continually intruded upon by service vehicles, creating serious conflicts with pedestrians.

The third large open space is a parking area bounded by Wurster Hall, the Law Building, Calvin Laboratory and the houses along Piedmont Avenue. This space is heavily used and is one of four parking lots in the precinct. Parking is greatly needed and the lots double as parking spaces for athletic events in California Memorial Stadium across Piedmont. By contrast with Parking Structure B, which has tennis courts on the roof, the lots occupy far too much open space in an unattractive and inefficient way.

The Piedmont and College buildings are former residential properties, some of which were moved here from their original sites. They fall into three groups. The first group includes 2240 Piedmont and

2251 College, adjacent to and at opposite ends of the Law complex. The former houses the Center for Study of Law and Society, and the Program in Jurisprudence and Social Policy. The latter, now used for the Environmental Physiology Laboratory, could be a logical adjunct to the Law School or serve some other purpose some time in the future. In the second group are the remaining five houses in the row along Piedmont Avenue. 2220 and 2232 Piedmont are assigned entirely to Anthropology, 2222 Piedmont houses a Linguistics research program, 2224 Piedmont houses Anthropology and Computing Affairs, and 2234 Piedmont is used predominantly for the Graduate Group in Demography. The third group comprises the two wooden houses just south of Calvin Lab, 2241 and 2243 College, the former occupied jointly by English as a Second Language and Near Eastern Studies, the latter by Anthropology. Of the nine residences, these last two are in the worst condition. Because of their diversity of architectural style, and their domestic scales the buildings along Piedmont Avenue in particular provide an attractive edge to the precinct and the campus. The residue of landscaping from previously well-tended lawns and gardens combines with the old street trees to provide a welcome streetscape.

The northeastern part of the precinct is dominated by Cowell Memorial Hospital to the east and Minor Hall and its Addition to the west. In addition to the space provided for the Student Health Service, its main occupant, Cowell also provides space for Psychiatry, Optometry, Donner Laboratory, and Environmental Health and Safety. Minor Hall and Minor Hall Addition are assigned entirely to the School of Optometry and its Clinic. A small parking lot and a street occupy the space between Cowell and the Optometry complex. Two double trailer units that occupy some of the parking spaces were scheduled for removal following the construction of Minor Hall Addition, but lack of more appropriate space has led to their continued use by Computing Affairs. Between Cowell and Gayley Road a triangular parking lot

awaits a more useful development to enhance the back of Cowell. North of Cowell, a small building, Girton Hall, now houses a child day care center. This building is described more fully elsewhere and excluded from this report.

With two notable exceptions, the architecture of the precinct's major buildings is generally restrained; many buildings share in the general character of the older campus buildings, and none is of outstanding merit. The exceptions, Wurster Hall and the University Art Museum, make strong statements in concrete about form, function (particularly the Museum) and the human environment. These uncompromising buildings lack neither critics nor defenders.

Throughout the precinct the landscape lacks strength and consistency. Plantings were done for each building as construction was completed and have little relationship to each other or to the two major open spaces. The repeated use of California Live Oaks in the Wurster quadrangle gives a sense of harmony which is repeated by the venerable old oaks in Faculty Glade. Much of the vegetation around the old houses is a conglomeration of remnants from former gardens. Many pleasant old trees serve to soften and buffer the architectural diversity and should be maintained.

Many of the major buildings of the precinct have courtyards, plazas and other outdoor use areas adjacent to or within the structures. Many of these are very pleasant, small-scaled spaces which are heavily used as sunning, studying and meeting places, outdoor classrooms or work areas.

#### Circulation

The precinct is well served by public and University transportation. An AC Transit stop is located on Bancroft south of Kroeber Hall. A major problem is the lack of easy public access to the Optometry Clinic. Its relatively obscure location in the Minor Hall Addition, inadequate public parking

and the long distances from public transportation make accessibility especially difficult for low vision persons.

Automobile parking is marginally adequate, with spaces scattered among the four major lots. A fee lot across Piedmont Avenue north of Memorial Stadium also serves the precinct, as does another at the corner of Durant and College, one block away.

Most of the buildings have adequate service areas and relatively direct access from surrounding streets or parking lots. The four buildings located the furthest from the south and east boundary roads (Wurster Hall, Minor Hall Addition and Hertz and Morrison Halls) have either inadequate service areas or ones that are poorly located. As a result, serious conflicts occur between service and delivery vehicles and pedestrians, especially between Wurster Hall and Minor Hall Addition and in the Wurster quadrangle.

Although the site slopes steeply from Piedmont Avenue to Minor Hall, circulation ways are generally accessible for wheelchairs. Cowell Hospital and the Law Building have numerous steps, making handicapped access difficult.

Bicycle parking is adequate and reasonably distributed throughout the precinct. Most of the bike parking facilities appear unkempt and cluttered because of the use of the movable, bulky concrete bike holders used elsewhere on campus. More attractive fixed holders, such as those used on the west side of Wurster Hall, should be carefully located and designed into the landscape. The proximity of the precinct to College and Piedmont Avenues makes the use of bikes fairly heavy. This should be encouraged by providing better bicycle parking facilities and by establishing north-south bicycle paths across campus.

#### Space Occupancy

The precinct houses two professional schools, a professional college with three formal departments, three I & R depart-

ments in the College of Letters and Science, seven Organized Research Units (one also a museum), five branch libraries (including the Law Library), an art museum, a hospital and a music hall, in addition to general assignment classrooms and several service units. Its nineteen buildings, plus the Minor Hall trailers, contain approximately 618,000 assignable square feet (ASF) and 998,000 outside gross square feet (OGSF). This amounts to roughly 14% of the central campus ASF and 15% of the OGSF.

The precinct covers roughly 14.5% of the central campus area. About 30% of the land is covered by buildings, as compared with an average of 20% for the entire central campus. As building distribution is rather irregular, density is quite variable throughout the precinct.

Four of the precinct's buildings contain general assignment classrooms; those in Law are generally restricted in use to Law classes. The ten large buildings are for the most part either special purpose buildings (University Art Museum, Calvin Lab, Cowell Hospital and Hertz Hall) or take their character from being assigned predominantly to a single instruction and research (I & R) unit. Kroeber Hall is the exception, being shared as the principal site of two I & R units and a Museum-ORU. Most of the nine former residences are used by units whose principal location is elsewhere on campus.

The adequacy of the amount of interior space for the I & R programs within this precinct can be addressed by consideration of the Restudy standards. These are the official guidelines for measuring the adequacy of space assignments, in terms of amount, for non-health sciences teaching and research departments. Strictly speaking, they are applicable only at the discipline level and not to individual departments. Except for Art-Practice and Music, however, the non-health sciences I & R units in the present precinct are either a Professional School or College with individual standards (Environmental Design and

Law) or an L & S department forming its own subdiscipline with a special standard (Anthropology), and these units can be compared directly with the applicable space standards.

Table 1 shows the space allowances generated under Restudy for the I & R departments housed in the Art, Music and Professions precinct. Four different disciplines, and hence four sets of standards, are involved. Based on these standards, it is clear the precinct is deficient in space. Overall adequacy, or the percentage of actual space as compared with needed space, is 78%. Each of the individual disciplines has well below 100% of its needed space with figures ranging from 45% for Law to 89% for Environmental Design. There are no Restudy standards for Optometry even though this may be the unit with the most serious space deficiency in terms of amount. Despite the fact that Minor Hall Addition is virtually a new building, in the process of bringing the project in line with available funds, less space was built than originally planned. The Project Planning Guide called for about 54,000 ASF, the present School and clinic now have 3,000 ASF less than this amount. In addition, a greatly expanded research program and planned new activities such as a Low Vision Clinic have added to the School's needs. The Restudy percentage for Law probably exaggerates the needs of that School. By this standard, the School has less than half (actually 45%) of the space derived from Restudy computation. The completion of new gift-funded construction now under way, together with the recent assignment of additional space for the Jurisprudence and Social Policy Program, should reduce this gap and provide much needed space for the School's I & R functions. Art-Practice, Anthropology and Music have space deficiencies. Art-Practice has a particular need for graduate student studio space; attempts made to find such space off campus (there being none on campus), have been unsuccessful. Anthropology, which shares Kroeber Hall with Art-Practice, also has insufficient space in that building and has

been forced to use inefficiently designed, and in many cases substandard, space in the former residences on Piedmont Avenue. Music's facilities, pleasant as they are, are inadequate to support the Department's changing programs. A gift campaign has been mounted to help alleviate crowding and provide needed facilities not now available. Program changes within the College of Environmental Design have intensified the use of space and though several minor capital improvements have been helpful, additional space is needed and more minor capital improvements are necessary. Restudy standards are not applicable to units such as the Laboratory of Chemical Biodynamics (LCB), an ORU, nor to the two major units in the precinct with archival functions, the Lowie Museum of Anthropology and the University Art Museum which have a shortage of storage space, Calvin Lab is filled to capacity and cannot provide space for planned program expansion of LCB; new research programs call for new kinds of space.

#### Space Quality

When capital needs are being studied, quality and suitability of space should be considered along with quantity. In this precinct the quality of space is generally fair to good with the notable exception of the former residences. Continuation of the present use of these buildings needs to be reassessed, particularly in the case of the northern Piedmont houses and 2241 and 2243 College, where major code and safety problems are involved.

In Table 2 the precinct's buildings are rated from one (very poor) to five (very good) in each of seven categories: age; program suitability; fire and life safety; structural safety; utilities; accessibility; and maintenance. Average ratings have been calculated for each building and for each category. Taken together the former residences have an average rating of 2.3, just above poor. These nine buildings fall into two groups: 2222, 2234 and 2240 Piedmont are fair, while the other six College and

Piedmont structures are unquestionably poor. In spite of extensive remodeling in some buildings, serious problems of fire and life safety, ventilation, maintenance and especially accessibility remain.

The more permanent major academic and support buildings fall roughly into three groups. Cowell Memorial Hospital, the oldest of the nonresidential buildings, is rated poor. Of the precinct's ten major buildings, it is probably most in need of improvement, particularly as regards ventilation and programmatic remodeling to enable the units to use existing space more efficiently and effectively. Its traditional hospital design is not suited to the contemporary program of the Student Health Service, let alone the needs of Optometry research. The Law Building, old Minor Hall, Wurster and Morrison Halls are rated fair. Heating and ventilation are major problems in all four of these buildings, and maintenance also needs some improvement. Old Minor Hall has recently been partially remodeled, as has the Law complex. As already mentioned, Wurster and Morrison Halls house units with new or changed program emphases, have some design problems, and are in need of some remodeling and additional space. The remaining buildings, the Art Museum, Hertz and Kroeber Halls, the Calvin Laboratory and the Minor Hall Addition, are judged good. The space in these five buildings is generally well suited to its present use. However, considerable work needs to be done in all of the buildings to correct deficiencies, and to respond to the repeated complaints of the occupants.

A detailed description and evaluation of the nineteen buildings in Precinct 3 is to be found in the report Phase I of Berkeley Campus Space Plan, Precinct 3 of Campus Space Resources Survey, Art, Music and Professions, May 1981.

Table 1  
Art, Music & Professions Precinct  
COMPARISON OF ACTUAL INSTRUCTION AND RESEARCH SPACE WITH RESTUDY ALLOWANCES

| <u>Discipline</u>       | -1-<br>Std ASF<br>Under<br>Restudy <sup>(d)</sup> | -2-<br>Actual<br>Std. ASF<br>Within<br>Precinct | -3-<br>Actual<br>Std. ASF<br>Outside<br>Precinct <sup>(e)</sup> | -4-<br>Actual<br>Nonstandard<br>ASF | -5-<br>Actual Std. ASF<br>as Percent of<br>Restudy Std. ASF<br>$[(2 + 3) \div 1] \times 100$ | -6-<br>Excess or Deficiency<br>of Actual ASF<br>vs. Restudy ASF<br>$(2 + 3 - 1)$ |
|-------------------------|---------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Anthropology            | 40,333                                            | 24,695                                          | 5,102                                                           | 0                                   | 74 %                                                                                         | - 10,536                                                                         |
| Arts <sup>(a)</sup>     | 77,840                                            | 50,969                                          | 14,603                                                          | 438                                 | 84 %                                                                                         | - 12,268                                                                         |
| Environmental<br>Design | 128,155                                           | 112,793                                         | 1,040                                                           | 3,297                               | 89 %                                                                                         | - 14,322                                                                         |
| Law                     | 51,302                                            | 23,191                                          | 0                                                               | 5,294 <sup>(b)</sup>                | 45 %                                                                                         | - 28,111                                                                         |
| Optometry               | -                                                 | -                                               | -                                                               | 33,651 <sup>(c)</sup>               | -                                                                                            | -                                                                                |
| Precinct Total          | 297,630                                           | 211,648                                         | 20,745                                                          | 42,680                              | 78 %                                                                                         | - 65,237                                                                         |

(a) Excludes Dramatic Art.

(b) This space is under alteration and will become standard space upon completion of construction.

(c) All but 100 ASF of this space is within the precinct. This is nonstandard space as Restudy does not cover Health Sciences. The Optometry Clinic occupies an additional 17,237 ASF.

(d) Restudy standards date from 1955 and were revised in 1966. ASF (assignable square feet) is calculated using 1980-81 year average work load data.

(e) Actual ASF is from Fall 1980 Facilities Data System (FDX).

Table 2

## Art, Music &amp; Professions Precinct

SUMMARY OF BUILDINGS RATINGS

| <u>Building</u>       | <u>Age</u> <sup>1</sup> | <u>Program Suitability</u> <sup>2</sup> | <u>Fire and Life Safety</u> <sup>2</sup> | <u>Structural Safety</u> 2,3 | <u>Utilities</u> <sup>2</sup> | <u>Accessibility</u> <sup>2</sup> | <u>Maintenance</u> <sup>2</sup> | <u>Building Average</u> |
|-----------------------|-------------------------|-----------------------------------------|------------------------------------------|------------------------------|-------------------------------|-----------------------------------|---------------------------------|-------------------------|
| Calvin Lab            | 4                       | 4                                       | 4                                        | 4 [673]                      | 4                             | 4                                 | 3                               | 3.8                     |
| Cowell                | 2                       | 2                                       | 3                                        | 3                            | 1                             | 3                                 | 3                               | 2.4                     |
| Hertz                 | 4                       | 5                                       | 3                                        | 4 [301]                      | 2                             | 3                                 | 4                               | 3.6                     |
| Kroeber               | 4                       | 4                                       | 3                                        | 4 [422]                      | 2                             | 3                                 | 4                               | 3.6                     |
| Law Building          | 4                       | 4                                       | 3                                        | 4 [376]                      | 1                             | 2                                 | 2                               | 2.9                     |
| Minor                 | 3                       | 3                                       | 3                                        | 4 [242]                      | 2                             | 3                                 | 3                               | 3.0                     |
| Minor Addition        | 5                       | 4                                       | 4                                        | 4 [540]                      | 3                             | 3                                 | 3                               | 3.7                     |
| Morrison              | 4                       | 3                                       | 3                                        | 4 [339]                      | 2                             | 3                                 | 4                               | 3.3                     |
| University Art Museum | 5                       | 4                                       | 4                                        | 3 [485]                      | 4                             | 4;1                               | 3                               | 3.6                     |
| Wurster               | 4                       | 4                                       | 2                                        | 3 [135]                      | 2                             | 3                                 | 2                               | 2.9                     |
| 2241 College          | 1                       | 3                                       | 3                                        | 2                            | 2                             | 1                                 | 2                               | 2.0                     |
| 2243 College          | 1                       | 3                                       | 3                                        | 2                            | 2                             | 1                                 | 2                               | 2.0                     |
| 2251 College          | 1                       | 3                                       | 2                                        | 2 [46]                       | 2                             | 1                                 | 2                               | 1.9                     |
| 2220 Piedmont         | 1                       | 3                                       | 2                                        | 2 [40]                       | 2                             | 1                                 | 2                               | 1.9                     |
| 2222 Piedmont         | 1                       | 5                                       | 3                                        | 3                            | 3                             | 1                                 | 2                               | 2.6                     |
| 2224 Piedmont         | 1                       | 2                                       | 2                                        | 3 [815]                      | 3                             | 1                                 | 2                               | 2.0                     |
| 2232 Piedmont         | 1                       | 3                                       | 2                                        | 3 [885]                      | 2                             | 1                                 | 2                               | 2.0                     |
| 2234 Piedmont         | 2                       | 4                                       | 4                                        | 3 [855]                      | 3                             | 4                                 | 2                               | 3.1                     |
| 2240 Piedmont         | 2                       | 4                                       | 4                                        | 3 [935]                      | 4                             | 4                                 | 3                               | 3.4                     |
| Precinct Average      | 2.6                     | 3.5                                     | 3.0                                      | 3.2                          | 2.5                           | 2.3                               | 2.6                             | 2.8                     |

<sup>1</sup> Key: 1 = completed before 1921  
 2 = completed 1921-1935  
 3 = completed 1936-1950  
 4 = completed 1951-1965  
 5 = completed 1966 to present

<sup>2</sup> Key: 1 = very poor  
 2 = poor  
 3 = fair  
 4 = good  
 5 = very good

<sup>3</sup> Key: The bracketed number in the column to the right is the building's ranking from the Seismic Hazard Survey, State of California Buildings.

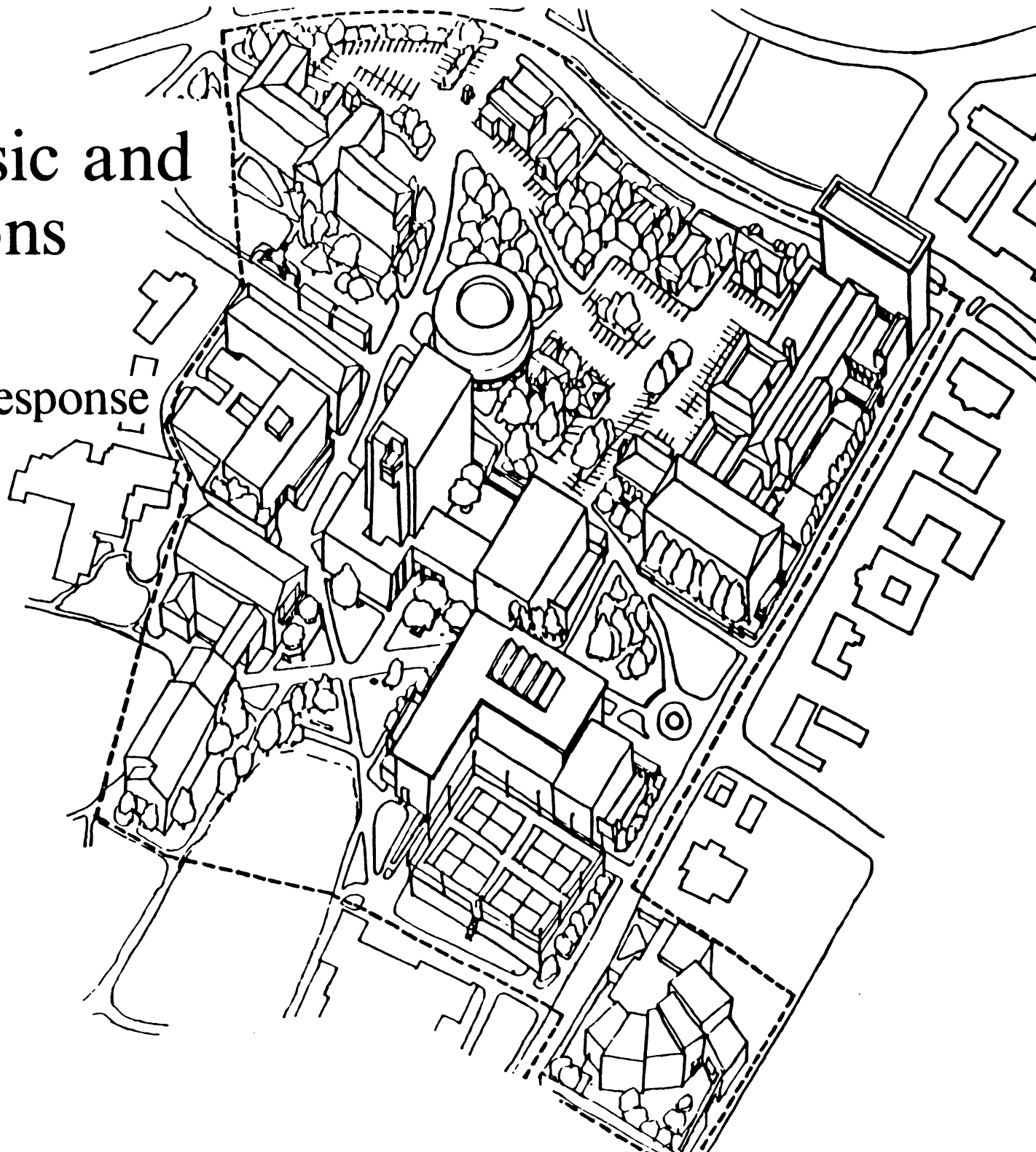
### Proposals

Projects which have been proposed and could be considered in this precinct include a fourth floor central addition to Wurster Hall linking the north and south towers, an underground addition to Calvin Laboratory on the east, a largely underground addition to Morrison and Hertz Halls, a new building for the School of Business Administration, an addition to the University Art Museum, and major changes in Cowell Hospital to meet the contemporary needs of the Student Health Service.

The precinct as a whole lacks a sense of cohesion. A strong social focus akin to what the Bechtel Engineering Center has done to the Engineering and Earth Sciences precinct could go a long way towards opening up channels of communication among the now unrelated units in the precinct. An addition of this sort linking Wurster and Kroeber Hall, or defining an edge for one of the large quadrangles, could be considered. The spaces east of Wurster Hall and east of Cowell Hospital are crying for attention. A relocated School of Business Administration in some portion of these spaces has been proposed for a fundraising campaign. Completion of this project would liberate considerable space in Barrows Hall, thus absorbing the activities now housed in many of the residences on College and Piedmont which would have to be demolished or relocated because of their old age and deteriorated condition. A major easterly addition to Cowell Hospital could vastly ease the crunch for space for Optometry, the Student Health Service and possibly Public Health. It would offer an opportunity to provide a decent facade to the building facing Gayley Road.

# Art, Music and Professions

Phase II  
Precinct 3 Response



## PHASE II - PRECINCT 3 RESPONSE

### SUMMARY OF PROJECTED ACADEMIC AND PROGRAM CHANGES

The following list summarizes the space implications of academic and program changes suggested by the units of this precinct.

The University Art Museum. Because the Museum must serve a broad community in order to meet its program's goals, daytime and nighttime access to the building must be improved. The Pacific Film Archive's program and collection have expanded significantly and require attention to access and storage needs.

Kroeber Hall (Art, Anthropology, History of Art, and the Lowie Museum). Studio space for graduate studies in Art Practice has never been adequate. Now, because of expanded enrollment, undergraduate studio space is approaching its limit. Crowding and lack of storage has created an urgent demand for space for the Art Department. The new program in biological anthropology has resulted in a need for laboratory space specifically related to the teaching and research functions of that field. Overall, the scattering of the subfields of Anthropology about the campus inhibits the fulfillment of the Department's academic goals.

Morrison and Hertz Halls (Music Department). The research and study needs for music have expanded to demand aural and performing resources not available in the present facilities. In addition, the field of musical composition has evolved to include work with computer-generated and electronically-synthesized sounds. The study of non-Western music has introduced new instruments, such as the gamelan, for which there is no space. These programmatic changes have new space requirements that cannot be met in the existing facility.

Wurster Hall (College of Environmental Design). The major academic development in CED has been the institution of three Ph.D. programs resulting in space needs that cannot now be met. A second major impact is an expanded program in building science for which there is no adequate space. Finally, since the College's organized research units are increasingly called upon to serve national, state, and local institutions, they need space for the continued expansion of their programs.

Minor Hall and Minor Hall Addition (Optometry). A new emphasis on research and new directions in research call for significant improvement of the quality of laboratory space and equipment.

Cowell Hospital (Student Health Service and Optometry). Changes in the practice of medical care that were not anticipated when the present building was designed, namely, prevention, health education, professional teamwork, and self care, have resulted in an outmoded facility with a need for major remodeling or a new facility. Optometry's space is similarly ill-designed for its present functions.

Melvin Calvin Laboratory (Laboratory of Chemical Biodynamics). The expansion of the research program in photochemistry and photophysics using the latest laser spectroscopic techniques will require new space, ideally located underground, to create optimum laboratory conditions.

Law Buildings (School of Law). Changes in methods of teaching law in the 1980s result in an increased need for smaller seminar rooms and mid-sized classrooms (40-60 seats) equipped for auditing taped lectures, taping trials and similar clinical activities. Expansion of the Jurisprudence and Social Policy Program has created new needs for library and student study areas for Ph.D. students and graduate faculty.

Other Buildings. The projected space needs of the units located in the precinct's small buildings reflect the substandard

conditions of the space in which they are housed rather than program and academic changes. These units are: 2240 Piedmont, Center for the Study of Law and Society, and Jurisprudence and Social Policy Program; 2234 Piedmont, Demography; 2232 Piedmont, Anthropology; 2224 Piedmont, Information Systems Office; 2222 Piedmont, Linguistics; 2220 Piedmont, Anthropology; 2241 College, English as a Second Language, Near Eastern Studies; 2243 College, Anthropology; and 2251 College, Environmental Physiology Laboratory.

### COMMON PRECINCT PROBLEMS

#### Maintenance and Equipment

The quality of maintenance, equipment and service is generally poor in the precinct. Deferred maintenance has resulted in badly functioning and obsolete mechanical equipment. In addition to the generally poor quality of lighting and the heating, ventilating and air conditioning systems (HVAC), special HVAC is lacking to serve the specific needs of the museums, labs, etc. Furthermore, obsolescence and deterioration of equipment significantly lowers the energy performance of the buildings.

#### Space

There is a shortage of various types of space in the precinct for a variety of reasons. Academic programs, class size and research directions have all changed. New space is needed and old space must be remodeled. Large lecture halls seating around 200 people are acutely needed, as are smaller classroom and seminar spaces for 25-50 people. Equally important is the need for storage space.

#### Service Vehicles Access, Parking and Security

The most pressing need in this area is better access for service vehicles. The precinct lacks a rational parking and access system for daytime versus nighttime use. This fact is further complicated by the problem of secure nighttime access

which, by inhibiting nighttime use, overloads daytime use.

## RECOMMENDATIONS

Recommendations are divided into three categories: proposals addressed to immediate precinct needs, to intermediate needs, and to long term needs.

Those projects recommended for immediate action tend to be modest in scale. They include a good deal of deferred maintenance, minor modifications to fit space to new uses and some reorganization of the way activities are scheduled, distributed and shared. While the recommendations are presented in generalized terms, specific projects are described in the reports of the individual units.

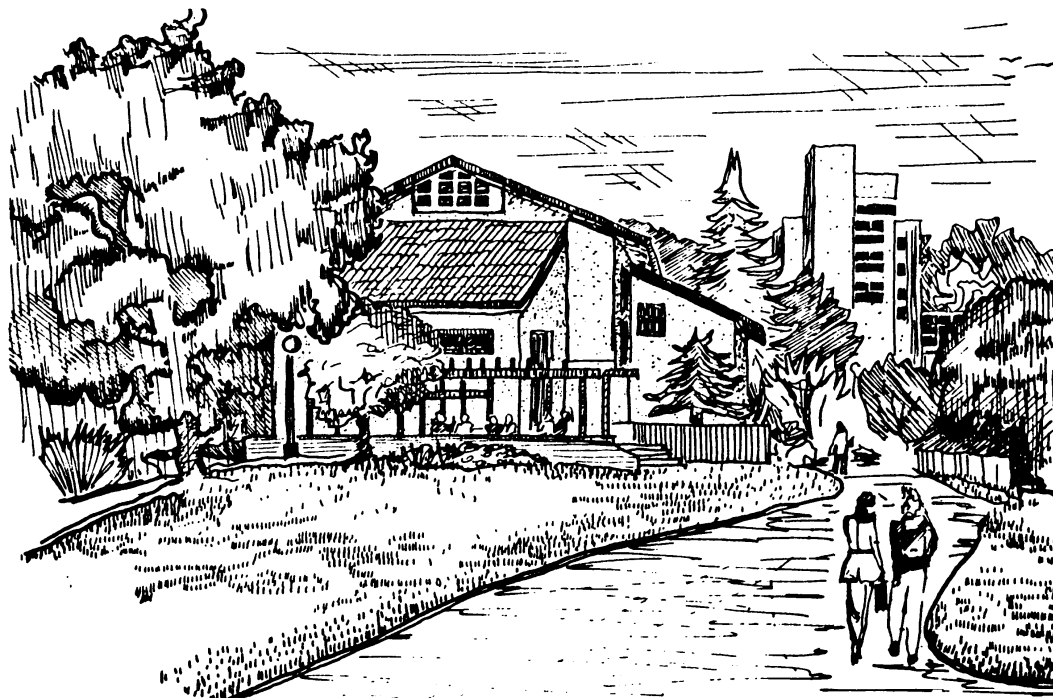
Intermediate range projects are larger in scale. Some anticipate future opportunities to relocate activities and convert present space to new uses. Others, based on existing needs and continuing growth, await the resources for planning and construction.

Long term needs involve new construction projects or major renovation. Some must await the completion of other campus projects before necessary moves can be made. Others await major policy decisions on physical and academic issues. All await funding.

### Proposals Addressed to Immediate Precinct Needs

A precinct-wide capital improvement program should be drawn up to improve the quality and effectiveness of existing space through the improvement and maintenance of mechanical equipment, replacement of HVAC, acoustical and lighting systems, and the general maintenance needs for cleaning, painting, and repair and replacement of furniture.

A set of minor capital improvement projects should be prepared to adapt individual



PROPOSED MORRISON HALL ADDITION

spaces to new uses, to divide or open up existing rooms, and to provide the services and utilities needed to best use these spaces. These projects should also address the widespread and continuing need for storage space for files, supplies, equipment and collections.

A special program for HVAC needs in the precinct should also be drawn up. This must go beyond the maintenance, repair, and upgrading of existing systems to provide the special qualities of ventilation, temperature, humidity, and air quality called for by the special uses within the academic unit.

A coordinated system for the scheduling of major auditorium, classroom, meeting, and exhibition spaces in the precinct should be implemented.

Guidelines for precinct landscaping should be set and first steps taken to unify such elements as paving, planting, outdoor signing and lighting, and to provide comfortable and attractive seating in a variety of quiet settings.

Plans for improved service vehicle and public transport access, a daytime and nighttime parking arrangement, and improved night lighting for security should be made in the immediate future.

The possibility of providing common precinct facilities should be explored. The following list indicates facilities which could efficiently serve more than one unit: precinct maintenance and service center; food service; satellite store of the A.S.U.C.; locker and shower room (for those who need changing and personal storage space on campus, such as cyclists and joggers); student organization offices; lounges and meeting rooms; centers for computers, word processors and reproduction services.

Another area calling for immediate study is that of providing precinct-level rather than central campus level services in the following categories: accounting; personnel; space assignment for general classroom space; mail service; admissions and records; purchasing.

This decentralized approach could reduce service traffic, encourage walking, build better personal working relationships and eliminate present redundancies.

#### Proposals Addressed to Intermediate Precinct Needs

In the next few years developments elsewhere on campus may provide occasion to consider the movement of some of the smaller units and the possible reuse of the small precinct structures when the present occupants move to other spaces. The study of these possibilities should include their remodeling and reuse as well as relocation or demolition to create new sites.

The construction of the proposed addition to the fourth floor of Wurster should be undertaken.

The project proposed for additions and improvements to the Hertz-Morrison Halls complex should be completed.

A program to add storage space to meet specific needs within the precinct should be drawn up.

#### Proposals Addressed to Long Term Precinct Needs

It is proposed a bridge-type structure be designed for the second floor level linking Wurster and Kroeber Halls which would provide space for common facilities (exhibition area, store, lounge, etc.) and encourage interaction and sharing of facilities between Art and Environmental Design.

In addition, long range plans should include an informal structure or landscaping that would partially close off the area west of Wurster, now open to the playing field. This structure could provide a setting for gatherings and performances, bringing together people from Art, Music, and Environmental Design.

A structure that would close the east court of Wurster Hall could provide additional space for activities now carried on inconveniently elsewhere in the building. This structure would allow space reorganization and reassignment in Kroeber and Wurster to provide additional space for Anthropology as well as studios for the Art Department in proximity to existing Wurster studios and shops. The structure could also include the underground addition needed by the Melvin Calvin Laboratory for its new research programs.

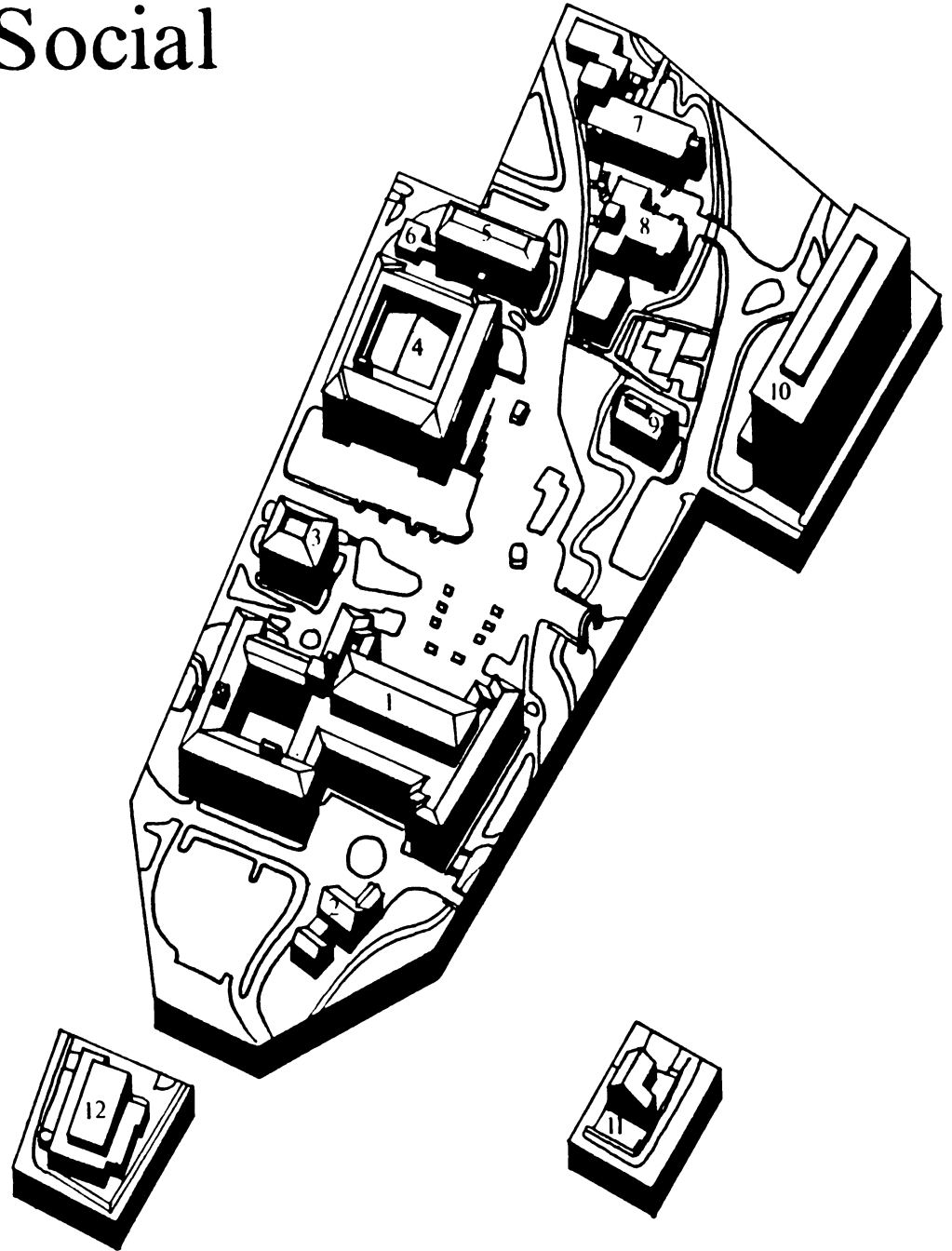
Bringing Anthropology together in appropriate and adequate space must be a priority. As space becomes available elsewhere on the campus Anthropology might be moved to a remodeled space close to the central campus. The space released in Kroeber could then be reassigned to meet the needs of the Art Department.

If, in the future, campus plans reaffirm the importance of operating active clinics which bring large numbers of patients to the central campus, a project must be initiated to provide adequate parking, bus service, and building service to make Optometry and Cowell accessible without penalty to other precinct activities.

# Humanities and Social Sciences

## Phase I Precinct 4 Overview

1. Dwinelle Hall
2. Dwinelle Hall Annex
3. Durant Hall
4. Wheeler Hall
5. South Hall
6. South Hall Annex
7. Stephens Hall
8. Moses Hall
9. Art Gallery
10. Barrows Hall
11. 2401 Bancroft
12. Callaghan Hall





## PHASE I - SURVEY

### PRECINCT 4 OVERVIEW

#### Humanities and Social Sciences

##### Buildings and Landscape

Located in the geographical heart of the Berkeley campus, the Humanities and Social Sciences precinct merges imperceptibly with the surrounding campus with no clear physical boundaries. The precinct is distinguished by forming a large portion of the classical core, or what is referred to as John Galen Howard's Acropolis. A further distinction is the presence of South Hall, the only original building of the campus still standing.

The landscape of this precinct varies from formal axes and attendant plantings near the classical buildings to the loose informality of the vegetation and small buildings along the South Fork of Strawberry Creek. The creek dominates the landscape by penetrating and dividing the eastern portion of the precinct and defining its southwestern edge.

The precinct is bounded on the north by Campanile Way, the major east-west axis extending from the Campanile to the creek west of the Life Sciences Building. The eastern edge is a line along South Hall Road jogging east around Stephens Hall and diagonally south to encompass Barrows Hall. Except for a dog-leg line between Barrows and Hearst Athletic Field the southern boundary follows Strawberry Creek to the Dwinelle Hall parking lot, the latter forming the western edge.

Two buildings, 2401 Bancroft and Callaghan Hall, are physically separated from this main body of the precinct. Their inclusion in the precinct is purely disciplinary and not by physical or geographical association.

Dwinelle Plaza forms the only major active open space in the precinct except for the Sather Road and Campanile Way cross-axes. The latter are primarily circulation routes while Dwinelle Plaza forms a significant activity node located at the juncture

of four heavily travelled pedestrian routes. The Plaza is simple, comprising two levels separated by steps. The large upper level adjacent to Dwinelle Hall is an open terrace paved in concrete and brick and surrounded by semicircular concrete seats built into walls on either side. The wall seats are backed by dense plantings of an English Laurel hedge and, appropriately for a humanities building, Grecian Laurel - the laurel of classical poets and scholars. Most of the plantings on the north side have been removed recently for the installation of a crudely designed handicapped access ramp.

The lower level is the more public space, providing ample seating on wooden benches with backs surrounding each of eight large square raised planting beds. The trees in the beds are in a state of decline (two are gone) and should be replaced with a larger growing species.

Dwinelle Plaza serves the precinct and the larger campus as an important meeting and gathering space. Its edges need to be redesigned, enabling it to meet the adjacent classical buildings of Durant and Wheeler Halls more gracefully, so as to better integrate it with the surroundings.

As a passive open space, the South Fork of Strawberry Creek forms an important landscape element in this precinct. Its upper reach in the Goodspeed Ecological Study Area buffers Stephens and Moses Halls from quiet Faculty Glade. Small secluded nooks and sitting areas are tucked into the towering Coast Redwoods, the predominant tree. Anthony Hall is the only building to take advantage of the creek, with an outdoor deck overlooking the water. The banks in this area need to be rehabilitated using native riparian species such as White Alder and Western Azaleas. Past Sather Gate the creek emerges in a small redwood grove which shields Dwinelle Hall from the Dining Commons to the south. From here on to the west the presence of the creek dominates the landscape, opening out into a sunny, grassy bowl south of Dwinelle Hall Annex before it disappears under the bridge leading to the Dwinelle parking lot.

The ten buildings of the central precinct are separated into four clusters by the precinct's major internal circulation routes. The western cluster, Dwinelle Hall, Dwinelle Hall Annex, and Durant Hall, are devoted almost exclusively to the humanities. Sprawling Dwinelle Hall houses all or part of nearly twenty such instructional units in languages, letters, and the arts, in addition to four ethnic studies units, the Language Laboratory, the Educational Television Office, Facilities Management shops, classrooms and auditoria. Its brown shingled Annex is shared by Dramatic Art and Subject A, and Durant Hall is used exclusively by Oriental Languages and the East Asiatic Library.

The northeast corner of the precinct includes Wheeler and South Halls and South Hall Annex. Wheeler Hall houses mainly the Department of English, classrooms, and the campus' major public auditorium. It also contains several administrative and student service units, plus library and TA office space for instructional units housed in Dwinelle Hall. South Hall, the oldest building on the campus, contains the School of Library and Information Studies and the Library School Library, while its physically connected Annex houses the Center for Studies in Higher Education, an Organized Research Unit.

The third cluster of buildings, those by the creek at the eastern end of the precinct, form a welcome contrast with the more formal and larger scale edifices to the northwest and south. Stephens Hall, the furthest east, is devoted primarily to the Social Science branch of the Library, but also contains several research and administrative units (principally the Institute of International Studies and the Academic Senate), plus a part of the School of Public Health. Moses Hall, just west of Stephens, houses the Institute of Governmental Studies, the Department of Philosophy, and the Institute of International Studies. Directly south of Moses across Strawberry Creek is Anthony Hall, designed by Joseph Escherick and known to many as the Pelican Building. No detailed evaluation of it has been made

in this academic precinct report, since its use is exclusively for student activities (presently the Graduate Assembly). It is, however, one of the finest small-scale buildings on campus, its landscape setting adjacent to the creek complimenting its architecture and giving unique harmony to the whole composition. Just west of Anthony Hall is the Art Gallery, or Powerhouse. Neither name accurately describes its use today, which is as a storage building and bicycle registration post. Northwest of this building is Substation No. 1. Unlike the campus' underground Substations Nos. 2 and 3, Substation No. 1 is a permanent building, comprising 2,604 gross square feet. Like Anthony Hall, it has been excluded from a detailed assessment in the present academic precinct report. Entirely designed for and devoted to campus utility services, it is a one story building with a basement vault level, and includes a computer room, several rooms with electrical equipment, and a steam room leading across Strawberry Creek to the campus' underground Steam Tunnel. This Steam Tunnel, totaling about 13,720 gross square feet in area, is also a part of the precinct. It extends underground below Wheeler Hall, turns west at Campanile Way and travels past Durant Hall (from which it is accessible at the basement level) below Campanile Way to Cross Campus Road, where it connects to the Central Heating Plant. It is possible to traverse the entire subterranean length of the Steam Tunnel on foot.

The fourth cluster comprises only one building, albeit the tallest in the precinct - Barrows Hall. Barrows houses four instructional units - Economics, Political Science, Sociology, and Business Administration - as well as three Organized Research Units and a large number of classrooms.

For programmatic reasons, 2401 Bancroft, the former Unitarian Church now used by Dramatic Art as a dance studio, and Callaghan Hall, a "temporary" building housing Naval Science and Aerospace Studies, have been included within this precinct, though they have no geographical connection. 2401 Bancroft lies to the southwest,

nestled near Zellerbach Hall in the University and Public Service precinct, while Callaghan Hall is due west in the Athletics precinct.

Architecturally the precinct is quite diverse, though the styles are by and large compatible. A definite European accent is apparent to the east, with the English Tudor architecture of Stephens and Moses and the French elements of South Hall. The purest and most beautiful classical building in the precinct, Durant Hall is a part of the campus' classical core. It harmonizes fairly well with the classical features of its neighbors, Wheeler and Dwinelle. The precinct's creekside buildings, particularly Dwinelle Annex and Anthony Hall but also the Art Gallery, blend in well with their natural surroundings. Barrows Hall, however, makes no concessions to its neighbors or its environment, and owing to its size, siting and largely nondescript architecture, is not in tune with the nearby buildings and playing fields. Substation No. 1 is a nonentity, and South Hall Annex is unworthy of its distinguished neighbor, South Hall. Durant, South and Wheeler Halls, as well as 2401 Bancroft, have been nominated as California State Landmarks and for inclusion in the National Register of Historic Places.

#### Circulation

The precinct's main north-south pedestrian circulation route is along Sather Road, leading north to the Libraries and south through Sather Gate to Sproul Plaza. East-west circulation is primarily by two routes, one along the north edge of the precinct along Campanile Way, and one through the precinct along the road extending east from Dwinelle Plaza and flanked on the north by Wheeler and South Halls and on the south by Moses and Stephens Halls. A third east-west route, somewhat less used, is Eshleman Road, north of Barrows Hall and leading east to Faculty Glade, whose extension to the west takes one along the creek past the Cafeteria toward the athletics precinct.

Except for emergency and service vehicles, which seem more common today than in the past, vehicular traffic does not penetrate the precinct. However, vehicles are present in significant numbers at the precinct's boundaries. The major parking lot in the precinct is the Dwinelle lot, located west of Dwinelle Hall. The lot contains 92 spaces and is accessible from Oxford Street to the west via Cross Campus Road and a bridge over the South Fork of Strawberry Creek. A smaller lot is located east of South Hall. This latter lot is an unfortunate forecourt for this historic building and is an intrusion into this portion of the campus. A further intrusion is the parking (both legal and illegal) in Campanile Way between Wheeler Hall and Doe Library. What ought to be an elegant classical pedestrian axis is one of the worst service areas on campus, choked with cars, trucks and buses.

#### Space Occupancy

Three of the precinct's buildings are major classroom buildings, and three include branches of the General Library. In total, the precinct provides space for two entire Professional Schools and part of two others, twenty-five Instruction and Research Departments in the College of Letters and Science, and six Organized Research Units. A variety of relatively small administrative and support groups are also housed in the precinct. Except for the Schools of Public Health and Journalism, whose primary space is outside the precinct, all the I&R units with significant space in the Humanities and Social Sciences precinct have their primary location within the precinct's boundaries. Economics, Linguistics, Dramatic Art and Subject A, however, do have a significant amount of space outside the precinct. Economics and Subject A have major programs (Econometrics and English as a Second Language) in a distant building, one Linguistics faculty member's research is located in a former residence on Piedmont Avenue, and Dramatic Art uses space in Zellerbach.

The twelve buildings of the Humanities and Social Sciences precinct contain approximately 417,000 assignable square feet (ASF) and 745,000 outside gross square feet (OGSF). This amounts to 10.2% of the central campus ASF and 10.7% of its OGSF. The precinct covers roughly 17.4 acres, or 9.6% of the central campus area. Together with the adjacent library precinct to the north, it forms a moderately dense campus area, with thirty percent of the land area covered by buildings as compared with a central campus average of twenty percent.

Space allowances under the Restudy space standards, which have been used by the State for many years to assess the adequacy of interior I&R space in terms of amount, are compared with present space assignments in Table 1. In general, each of the disciplines has a separate set of standards. Since the standards are not intended to apply to individual departments, breakdowns below the discipline level are not shown. The precinct overall has 86% of the space allowed under Restudy. This figure is indicative of the general overcrowding felt by most of the precinct's occupants. Units in Dwinelle and Barrows Halls have been making requests for additional space for some time. There is a particular need for adequate space for TAs and graduate students, for research projects, and in some instances for regular faculty who cannot be housed within existing allocations. More recently space has also become a problem in Durant Hall and Dwinelle Hall Annex. The need of Near Eastern Studies for faculty offices and student work space, for instance, has necessitated the expedient of splitting that department into two groups and temporarily crowding one of them into substandard space in a former residence, 2241 College, distant from colleagues. The Ethnic Studies and Afro-American Studies Departments are so crowded in Dwinelle Hall that some ladder faculty do not have private offices. It has been anticipated that some relief may be obtained by relocating a unit or units from Barrows or Dwinelle to Evans Hall, at least on a temporary basis. A

longer term solution may involve relocation of the School of Business Administration into a new building at another site, or construction of an addition to Dwinelle Hall. Though there are problems with the quality of some precinct space, particularly owing to inadequate maintenance, the chief need in the Humanities and Social Sciences precinct is for additional space.

#### Space Quality

The space problems of this precinct can be further understood by evaluating the age and condition of its buildings. This information is summarized in Table 2. In this table, the precinct's buildings are rated from one (very poor) to five (very good) in each of seven categories: age; program suitability; fire and life safety; structural safety; utilities; accessibility; and maintenance. The buildings fall very roughly into three groups. The Art Gallery, Durant Hall, Dwinelle Annex, and South Hall average poor. By no coincidence, these are among the oldest structures in the precinct. They have spaces inefficiently designed for the uses to which they are put today, and have serious code and other deficiencies. These are all buildings which should be preserved, however, particularly Durant and South Halls, which are expected to be declared California State Landmarks. The Art Gallery is poor or very poor in every respect but accessibility. Its present use for storage, though convenient for the units involved, is an unfortunate use for such a prime building location, but no more active use can be considered until major improvements, chiefly structural, can be made. Durant Hall has reached capacity for housing the Oriental Languages Department (which already spills over into Dwinelle and Wheeler) and the Program-related East Asiatic Library. It also has serious heating, ventilating, electrical, and accessibility problems. Dwinelle Annex similarly has utility and access problems. This Bay Region style brown shingle has also deteriorated seriously from lack of maintenance. Finally, South Hall has structural problems

and inadequate ventilation, and despite its recently installed elevator is not accessible to the disabled.

The other two oldest buildings, Wheeler Hall and South Hall Annex, have much higher ratings, fair for Wheeler and almost good for South Hall Annex. Their higher rating stems from recent renovations. Were it not for inadequate maintenance, a serious problem in such a heavily used building and its seismic hazards, Wheeler would be one of the showplaces on the campus.

The remaining six buildings range from somewhat below to a little above fair. Lack of proper maintenance, accessibility, and poor ventilation are the most serious problems with 2401 Bancroft, which is otherwise nearly ideal as a dance studio and a fine example of adaptive reuse. Poor ventilation and poor maintenance, together with overcrowding and bad design, are the major problems in Barrows. Stephens similarly is in need of maintenance, particularly to eliminate leaks, but has the added problem - shared with several other precinct buildings - of no handicapped access. Dwinelle's problems of overcrowding and inadequate maintenance are similar to Barrows', while Moses shares with Stephens a complex floor plan lacking access for the disabled. Callaghan is rated fair in every category and appears to have no serious problems. The precinct's overall rating of 2.8, less than fair, stems largely from problems of overcrowding, poor maintenance, lack of accessibility and, in many instances, inadequate ventilation and utilities. Three of this precinct's buildings, the Art Gallery, South Hall, and Wheeler Hall, appear among the top six candidates for seismic hazard correction in a recent State survey, followed closely by Barrows, Stephens, and Dwinelle Halls.

A detailed description and evaluation of the twelve buildings in precinct 4 is to be found in the report Phase I of Berkeley Campus Space Plan, Precinct 4 of Campus Space Resources Survey, Humanities and Social Sciences, July 1981.

Table 1  
 Humanities & Social Sciences Precinct  
COMPARISON OF ACTUAL INSTRUCTION AND RESEARCH SPACE WITH RESTUDY ALLOWANCES

| <u>Discipline</u>                 | -1-<br>Std.ASF<br>Under<br>Restudy <sup>(c)</sup> | -2-<br>Actual<br>Std.ASF<br>Within <sup>(d)</sup><br>Precinct | -3-<br>Actual<br>Std. ASF<br>Outside<br>Precinct | -4-<br>Actual<br>Nonstandard<br>ASF | -5-<br>Actual Std. ASF<br>as Percent of<br>Restudy Std. ASF<br>$[(2 + 3) \div 1] \times 100$ | -6-<br>Excess or Deficiency<br>of Actual ASF<br>vs. Restudy ASF<br>$(2 + 3 - 1)$ |
|-----------------------------------|---------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Social Sciences <sup>(a)</sup>    | 85,538                                            | 72,076                                                        | 8,435                                            | 225                                 | 94 %                                                                                         | -5,027                                                                           |
| Dramatic Art                      | 16,905                                            | 6,872                                                         | 6,840                                            | -0-                                 | 81 %                                                                                         | -3,193                                                                           |
| Letters                           | 46,500                                            | 45,118                                                        | 1,530                                            | -0-                                 | 100 %                                                                                        | +148                                                                             |
| Foreign Languages                 | 52,767                                            | 41,353                                                        | 352                                              | 6,912                               | 79 %                                                                                         | -11,062                                                                          |
| Business Administration           | 64,278                                            | 46,886                                                        | -0-                                              | -0-                                 | 73 %                                                                                         | -17,392                                                                          |
| Military Sciences <sup>(b)</sup>  | -                                                 | -                                                             | -                                                | 14,920                              | -                                                                                            | -                                                                                |
| TOTAL<br>(less Military Sciences) | 265,988                                           | 212,305                                                       | 17,157                                           | 22,057                              | 86 %                                                                                         | -36,526                                                                          |

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- (a) Excludes Demography, Public Policy, Anthropology and Geography.  
 (b) Includes Aerospace Studies and Naval Science only.  
 This is nonstandard space as Restudy does not cover military sciences.  
 (c) Restudy standards date from 1955 and were revised in 1966. ASF (assignable square feet) is calculated using 1980-81 year average workload data.  
 (d) Actual ASF is from Fall 1980 Facilities Data System (FDX).

Table 2

## Humanities and Social Sciences Precinct

SUMMARY OF BUILDINGS RATINGS

| <u>Building</u>            | <u>Age</u> <sup>1</sup> | <u>Program Suitability</u> <sup>2</sup> | <u>Fire and Life Safety</u> <sup>2</sup> | <u>Structural Safety</u> <sup>2,3</sup> | <u>Utilities</u> <sup>2</sup> | <u>Accessibility</u> <sup>2</sup> | <u>Maintenance</u> <sup>2</sup> | <u>Building Average</u> |
|----------------------------|-------------------------|-----------------------------------------|------------------------------------------|-----------------------------------------|-------------------------------|-----------------------------------|---------------------------------|-------------------------|
| Art Gallery                | 1                       | 2                                       | 2                                        | 1 [1]                                   | 2                             | 4                                 | 2                               | 2.0                     |
| Barrows Hall               | 4                       | 3                                       | 3                                        | 3 [147]                                 | 1                             | 3                                 | 2                               | 2.7                     |
| Callaghan Hall             | 3                       | 5                                       | 3                                        | 3 [1337]                                | 3                             | 3                                 | 3                               | 3.3                     |
| Durant Hall <sup>4</sup>   | 1                       | 3                                       | 4                                        | 3 [388]                                 | 1                             | 1                                 | 2                               | 2.1                     |
| Dwinelle Hall              | 4                       | 3                                       | 2                                        | 4 [281]                                 | 2                             | 4                                 | 2                               | 3.0                     |
| Dwinelle Hall Annex        | 1                       | 3                                       | 3                                        | 3 [717]                                 | 2                             | 2                                 | 1                               | 2.1                     |
| Moses Hall                 | 2                       | 5                                       | 3                                        | 3 [309]                                 | 3                             | 2                                 | 4                               | 3.1                     |
| South Hall <sup>4</sup>    | 1                       | 4                                       | 4                                        | 1 [5]                                   | 2                             | 2                                 | 3                               | 2.4                     |
| South Hall Annex           | 1                       | 5                                       | 4                                        | 3                                       | 4                             | 4                                 | 5                               | 3.7                     |
| Stephens Hall              | 2                       | 4                                       | 3                                        | 3 [213]                                 | 3                             | 2                                 | 2                               | 2.7                     |
| Wheeler Hall <sup>4</sup>  | 1                       | 4                                       | 4                                        | 3 [6]                                   | 3                             | 4                                 | 3                               | 3.1                     |
| 2401 Bancroft <sup>4</sup> | 1                       | 5                                       | 3                                        | 3                                       | 3                             | 1                                 | 2                               | 2.6                     |
| Precinct Average           | 1.8                     | 3.8                                     | 3.2                                      | 2.8                                     | 2.4                           | 2.7                               | 2.6                             | 2.8                     |

<sup>1</sup>Key: 1 = completed before 1921

2 = completed 1921-1935

3 = completed 1936-1950

4 = completed 1951-1965

5 = completed 1966 to present

<sup>2</sup>Key: 1 = very poor

2 = poor

3 = fair

4 = good

5 = very good

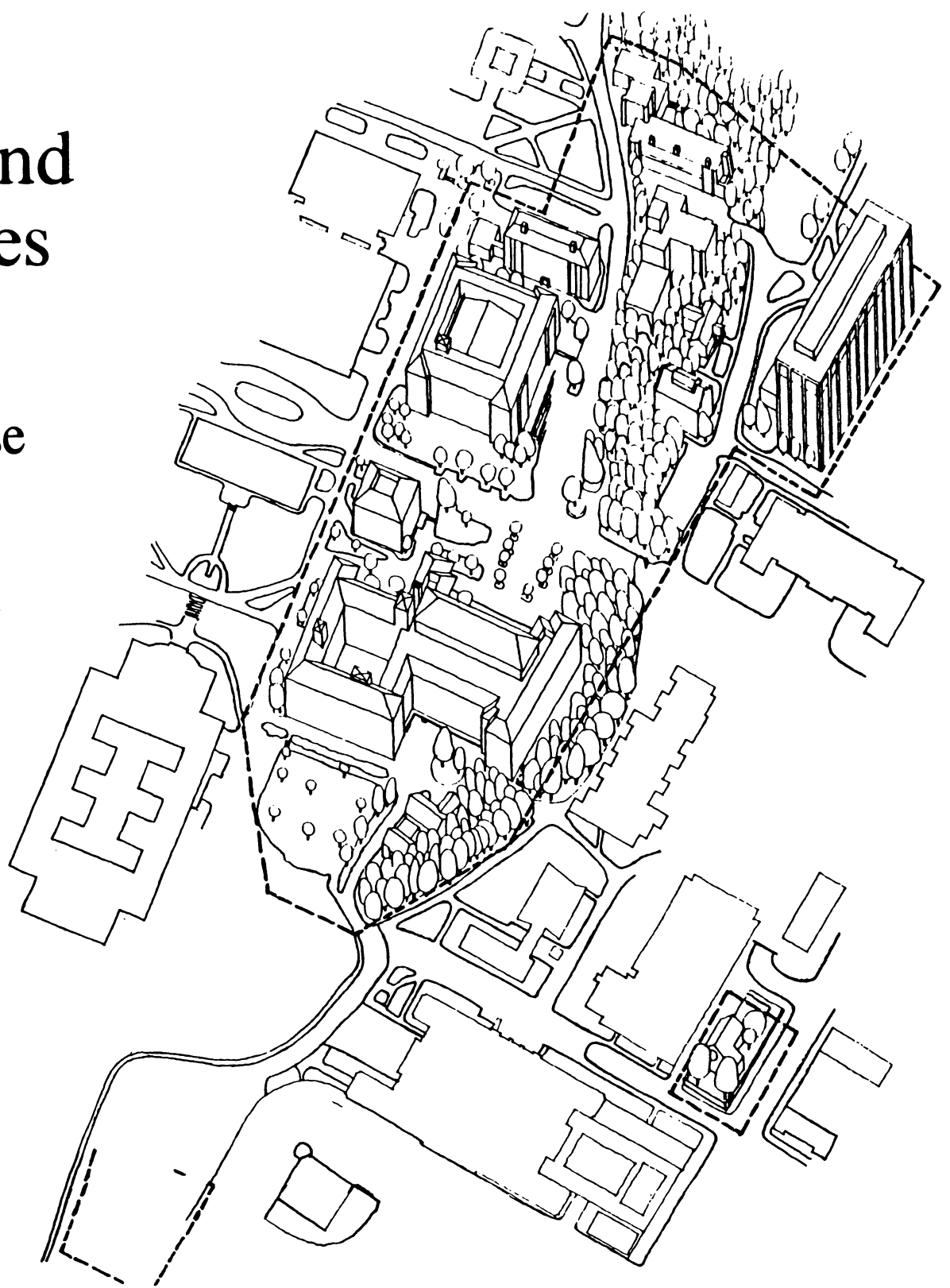
<sup>3</sup>Key: The bracketed number in the column to the right is the building's ranking from the Seismic Hazard Survey, State of California Buildings.<sup>4</sup>Key: Building has been nominated as California State Landmark and for National Register of Historic Places.

### Proposals

The major space needs of the Humanities and Social Sciences precinct are upgrading of some of the older buildings (including handicapped access to Moses, Stephens, South, and possibly Durant Halls) and relief of overcrowding for the humanities and social sciences. It has been proposed to relocate a unit from Barrows or Dwinelle Hall into space to be released by Mathematics, Statistics and Journalism in Evans Hall. This would provide a short-term solution to the immediate space crunch. Longer term solutions include the construction of a new building for the School of Business Administration to effect the School's relocation from Barrows, or the construction of an addition to Dwinelle Hall in the west parking lot. Careful thought must be given in this precinct to a solution to the overcrowding which would be equitable to all involved units.

# Humanities and Social Sciences

## Phase II Precinct 4 Response



## PHASE II - PRECINCT 4 RESPONSE

The task force on space needs for precinct 4 of the Berkeley campus (Humanities and Social Sciences) responded to its charge by soliciting responses from 46 units housed in the precinct. The task force requested information on current space needs and those projected until 1984-85. The 46 units are divided into (a) primary units such as academic departments offering courses of instruction, (b) secondary units, viz. ORUs, academic service units, and organized activities, and (c) units that lie outside the physical precinct but which relate closely to the Humanities and Social Sciences. These units were also asked to comment on the Phase I report relevant to their unit.

The Phase II report is based on the responses from the units surveyed, on information gleaned from Phase I reports, and on the task force's deliberations concerning problems in the precinct as well as problems in other Precincts pertinent to precinct 4.

The great majority of the 46 units in precinct 4 may best be characterized as frustrated with respect to the amounts and types of space now assigned to them. It is noteworthy that the only satisfied units, generally speaking, are the nonteaching ones - administrative units, academic service units, research centers and institutes. This same group often exhibits relatively comfortable furnishings and accommodations in striking contrast to those of academic teaching departments.

Since the task force felt the Phase I reports described existing space allocations and conditions as well as major problems in the buildings of precinct 4 adequately, it chose to concentrate on the problems of individual units in Phase II, with suggested remedies for individual buildings and for the precinct as a whole. Before looking at each unit in detail, the following general observations should be noted. The precinct lacks adequate regular faculty office space and office space for visiting faculty. Many

units have offices and personnel scattered in different buildings or parts of buildings; thus, there is need for consolidation of faculty, TA, and administrative office space. Office space for emeriti and phased retirees is and will be needed; the task force recommends a uniform campus policy be developed for these problems. Graduate student workspace is lacking. What TA consulting space there is, is often unworkable and therefore little used. Storage space for microfilms, slides, film, maps, etc. is needed. Equipment space (duplicating machines, word processors, computers, etc.) should be increased. Expanding departmental library collections require more space; some consolidation and more supervision is required. Classroom scheduling is increasingly difficult, in part owing to erosion of classroom space for other purposes. There are serious security problems in large buildings. Lockable office-seminar clusters are needed for many disciplines. Many requests for commons rooms for faculty and students are ignored. Fixed-desk classrooms are considered inadequate for many courses of instruction; more multi-purpose rooms are needed. There is insufficient faculty research space for special projects. The 1966 space and utilization standards are inappropriate to current needs in the Humanities and Social Sciences. The current classroom assignment system used by OAR is outmoded, rigid, and in need of computerization. The task force echoes Phase I's concerns over aesthetics and maintenance in most buildings. In some, lack of maintenance has created serious health hazards. The task force questions the propriety of permitting professors in some cases to occupy two offices because they are associated with a center or institute. An individual assigned a second office must be required to justify the extra space. A reexamination is needed of existing policies and practices regarding nonteaching units encroaching upon academic departments. Long-range plans should be developed to eliminate parking on campus.

Details of this report should be computerized in order to keep the study current as

administrative and programmatic decisions are made. This should include computer graphics to reflect renovations, new construction, and other structural modifications. If this were coupled with computerized assignment of classroom space, problems identified above could be resolved and eliminated.

## UNIT AND BUILDING RECOMMENDATIONS

### DWINELLE HALL

American History and Institutions. The size and location of assigned space for American History and Institutions is considered ideal. The unit does not want to be moved.

Chicano Studies. Chicano Studies is one of several severely overcrowded Dwinelle units. They have a shortfall of three faculty studies, no space at all for five FTE Teaching Associates, and consequent doubling-up. The space requests they make are proportionately but not absolutely large (approximately 100%: 1,000 ASF).

The Chicano Studies Library is in Wheeler; it suffers from an overcrowded noisy study space, temporary and dangerous shelving, and poor structural conditions. This library seeks to serve a larger audience than its own unit and in order to do so requests a doubling of its space (by approximately 1,400 ASF). The library situation calls for an evaluation of its charter and the multi-library situation in Dwinelle. There is little doubt that Chicano Studies needs relief.

Classics. The Classics Department is, in general, satisfied with its location in Dwinelle. However, it requires approximately 850 additional ASF near the department for TA space, faculty offices and an equipment room. 300 ASF could be supplied by space now assigned to Classics elsewhere in Dwinelle's classroom wing (Rooms 43 and 354B). In addition, the

archaeologists in the Department should be provided with laboratory and layout space.

Comparative Literature. Since all faculty members of this department hold split appointments with other departments in the humanities, there is no reasonable way that all its faculty could be consolidated nearer the Department's administrative office on D level. The Department does need two more faculty offices for visitors, lecturers and associates, and these, as well as space for its TAs (now scattered about Dwinelle and Wheeler), should be located near the Department's main office. Also greatly needed is a chair's office near the main office as well as a multi-purpose extra room for giving of exams, etc.

The Oriental Languages faculty not associated with Comparative Literature should be moved to A level (after NES moves out) until such time that Oriental Languages faculty can be consolidated in a remodeled Durant Hall.

Educational Television. Educational Television currently occupies approximately 7,500 ASF in Dwinelle Hall which is the principal base of this unit's operation (serving all departments and campus agencies wishing to use TV, film, and audio-visual aids as part of instruction, or in administrative activities). An additional 2,400 ASF of space is assigned to Educational TV in various campus buildings as teaching laboratories or equipment space used in conjunction with large lecture halls such as PSL, and as relay points for buildings connecting to the campus TV and data cable network. Generally, the amount and type of space assigned to Educational TV has been adequate during the past five years. Since upgrading ETV's production capability to professional quality color, and the increase of portable, lightweight viewing equipment and additional student TV viewing facilities in the Spring of 1980, there has been an unprecedented demand on the facilities and space. Conditions are becoming more congested as student and faculty use rises. Additional individual and group viewing facilities in Dwinelle Hall

and across the campus are required. The major need in the next five to ten years will be proper TV facilities within classrooms, study areas and laboratories as well as access points in buildings where equipment can be housed for deployment into teaching space as needed.

The systematic development of space for ETV's unit in Dwinelle Hall was designed to place it within easy access of teaching staffs. This department's main space requirements, particularly in Dwinelle, have been accommodated. The undeveloped space in Zellerbach Auditorium building was originally earmarked for ETV and the campus radio station. The completion of this facility never materialized owing to high costs. To relocate and reestablish the complex electronic systems from Dwinelle into this building would be costly. Depending on what gains could be anticipated for the campus which might be realized by such a move, relocating ETV could be accomplished. Whether or not relocation of ETV is practical in light of the total campus space plan, the Zellerbach basement area is a valuable, centrally located space resource, which could be developed if funds were available. So far as ETV is concerned, visibility and accessibility to facilities are key factors in continuing to adequately serve the instructional programs at Berkeley.

French. According to the Department's response, the D level space now assigned to the Department is adequate in every way. Thus, in the recommended move of Italian from E level to D level, the task force has planned for the same amount of space for French (approximately 6,714 ASF).

German. The German Department is satisfied with its location in Dwinelle but desires some change in the kind of space it has as well as some additional ASF. German wants better provision for a commons room with improved furnishings, a seminar classroom, space in Dwinelle for the ten TAs which now must be housed in Wheeler, and additional library space. Two more

faculty offices are needed for lecturers and visiting faculty.

It is recommended that German be shifted counterclockwise along the west corridor and given the space it needs, at the same time giving up Room 175.

History. The space occupied by the History Department is confined to Dwinelle Hall and includes, in addition to administrative and faculty offices, rooms for a faculty and student lounge, a department library, a small conference room, and storage rooms. All are fully utilized. The greatest single problem facing the Department is the shortage of faculty offices. The department has 53 faculty offices for 56.5 faculty FTE; in addition it has 10 emeritus faculty, two of whom continue to use their offices. In the past the problem has been handled by using offices freed by those on sabbatical or other leave but this will not continue to work as more faculty remain in Berkeley and use their offices during sabbaticals. It is hoped that the consolidation of research and administrative units will free space in Dwinelle and a proportionate amount of this space will be allocated to the History Department.

At the moment, however, the needs do not appear to be as pressing as those in other departments. However, one faculty member is housed in Doe Library in a room required by Art History. It is recommended that the Philosophy Department occupants in Rooms 3112 and 3116 be relocated to Moses when it can provide offices for them, and after the adjustment on D level is made, History be assigned Room 30 (after Dramatic Art releases it).

Italian. In general, the Department is pleased with its location in Dwinelle. Although the Department has requested a lounge and more storage space, the space now assigned to it appears adequate. Because of pressing needs on E level, it is recommended that Italian be moved to D level after South and Southeast Asian Studies has moved out.

Language Laboratory. The function of the Language Laboratory involves provision to students in language and related fields of recorded lessons and electronic listening facilities, as well as the necessary production, duplication, and maintenance to sustain these. Secondly, the Laboratory shows visual materials related to language-teacher training, provides recorded materials on literature, stores recordings of rare languages, and in the absence of an audio center, provides an archive of lectures, speeches and poetry readings for various campus organizations. In cooperation with the Educational Television Office a cooperative system for the storage and circulation of videotapes essential to English as a Second Language have been made more efficient.

The Laboratory occupies 6,912 ASF in Dwinelle Hall consisting of six laboratory classrooms and several rooms, cubicles, and closets. The problems confronting the laboratory have mainly to do with the conversion to more modern equipment and the maintenance of Dwinelle Hall which, at least in the area of the Laboratory, appears dirty and in poor repair. The ventilation system in Dwinelle is not only ineffective and unclean but also causes noise interference with various functions of the Laboratory. There is also a serious leak problem within the Laboratory's area.

Linguistics. The most pressing need of the Department is for a phonology teaching laboratory, a subject of almost yearly request for capital improvement. Other space is required for more efficient use of the duplicating machines, computing terminals and a printer. The Department would willingly consolidate its library with that of another department since present security conditions are not good, but would prefer that the freed space be used as a Department classroom.

Expansion of the Phonology Laboratory into the enormous (and largely unused) men's room on C level is suggested by the precinct 4 task force.

Native American Studies. Native American Studies requests more than doubling its present faculty space (by 600 ASF) in order to house a variety of projected faculty. Even with the present faculty, this Department may be the most crowded in the building. NAS currently has no Teaching Associate space for a projected 3 FTE. The total staff space request is for an additional 1,100 ASF over the current 1,100 ASF.

In addition, Native American Studies has special space requests. It is asking for another 668 ASF for the library in order to meet General Library guidelines, and a modest amount of space is needed for counseling students, a video laboratory, and housing journals.

The total requirement comes to 2,200 ASF or a doubling of assigned ASF. There seems to be a serious need, but its magnitude must be further reviewed based on continuing workload as well as policy concerning library needs.

Near Eastern Studies. The location of the main portion of the Department of Near Eastern Studies along the west and north corridors of A level is exceptionally poor not only because there is not enough space to house all members of the Department, but also because the ground floor presents serious security problems. The NES corridor is a flow-through space awash with lost students, the general public and thieves. Other NES (faculty and TA) offices are in the classroom wing on two different floors or clear across campus in 2241 College, a deteriorated wooden building.

Administrative and equipment space is disturbingly overcrowded and congested; no reception area exists. There is inadequate space for visitors, research (especially for the archaeologists and faculty with computer projects), and the slide collection. The Departmental library is undersized and overcrowded and cannot be used by students or faculty in the evenings or on weekends. The existing type of office space (small rooms lined up along narrow

corridors) is educationally improper for the kind of work faculty and students must do (i.e., consult many large volumes and numerous reference works at the same time or handle objects and slides). Contiguous lockable suites with workroom space and seminar space are what the Department needs.

It is recommended that NES be removed from the level A corridor. Faculty should be consolidated, if not in another location in Dwinelle where cluster offices (lockable) may be found, then in another building (e.g., Evans Hall) where such suites of rooms are feasible and where lab and lay-out space would be available.

Oriental Languages. In Dwinelle, Oriental Languages occupies five (separated) faculty offices. Ideally the Oriental Languages faculty should be relocated in Durant where the Department is located. It is recommended that, until such time as the first floor of Durant is remodeled to accommodate these five Oriental Language faculty members, five (or more) offices on A level be assigned to Oriental Languages (after NES moves out).

Rhetoric. The Department wants moveable classroom chairs in assigned classrooms. It would also be desirable to have the assigned lounge and library rooms connected by a sliding door (some renovation to the History TA room would be required).

Some trading of space on B level is recommended.

Scandinavian. This small Department seems satisfied with its location in Dwinelle (A level). However, it sorely needs additional space for library holdings, TAs, Associates, and a commons room. The request amounts to about 450 ASF. Two faculty members not now in contiguous space should be moved to the same corridor.

The task force recommends the entire north corridor of A level be assigned to Scandinavian.

Slavic. The location of the Slavic Department in Dwinelle is an unfortunate one in that its space is divided between two wings and is on three separate corridors; between the wings are large fire doors and stairways. (The corridor separating Slavic from the Germans is known there as the Elbe, and the stairway as the Urals.) Space assignments to the Department should be shifted in order to consolidate the Department along a single corridor. TAs now housed in Wheeler should be brought back to the department, or as close to it as possible.

The present space assigned to Slavic is woefully inadequate. Slavic needs approximately 750 additional ASF for faculty offices, TAs, general use, equipment, visitors and emeriti. The Department stresses the difficulty it has obtaining appropriate classroom assignments, and pleads for the return of space to classroom use.

The task force recommends that Slavic release its space in the classroom wing, and be compensated by space along the east hall, northeast corner and north hall of E level. A proper equipment room might be created for shared use with German and Classics on E level.

South and Southeast Asian Studies. SSEAS, the most recently created department in the humanities, is in dire straits. Faculty offices are spread all over Dwinelle on different floors and in different wings. The department desperately needs extra space, about 1,450 ASF, for faculty, students, administration and equipment.

The task force recommends that SSEAS be relocated to another building (Evans Hall preferred), together with the Center for SSEAS (now housed in Stephens Hall). If this cannot be arranged, the Department should immediately be provided with additional offices along the 4100 corridor or D level, or approximately 1,100 additional ASF. Faculty from other departments (History, Oriental Languages, and French) now in that corridor would, mutatis mutan-

dis, have to be moved elsewhere in Dwinelle.

Spanish and Portuguese. A small storage area is needed in Dwinelle for this unit. Possible future needs, should the campus acquire a Hispanic Medieval Seminary, would include one additional faculty office and 750-1,000 square feet of space for the new institute (not necessarily in Dwinelle).

In connection with the recommended move of Italian to D level, some adjustments in Spanish's room allocation on D level would be necessary.

#### Summary

"There is no joy in our halls." This quotation expresses the feelings of all but three units in Dwinelle; the exceptions are the Departments of French and Italian and Educational TV who are happy and satisfied in their locations and with their existing space.

All other units have urgent and pressing problems that range in degree and kind from lack of regular faculty offices to overflowing departmental libraries and unhealthy air or temperature control.

The problems listed in the introductory remarks affect precinct 4 in general, but all exist to an extreme degree in Dwinelle Hall. While buildings such as Barrows, Wheeler and Durant have problems, Dwinelle has the most and the worst. The building is overstuffed and ready to burst its seams. Students rarely have a place to sit, and faculty rarely have a place to gather with each other or with students. Many faculty are dispersed throughout the building or must be in other buildings for lack of space in Dwinelle. Many TAs affiliated with Dwinelle departments are provided desk space in Wheeler or in Dwinelle's classroom wing. Some professors are forced to share offices with TAs, visiting faculty, and RAs. Many faculty teach in their offices for lack of classroom availability. Old fashioned, fastened-down desks are unsuitable for many classes,

while seminar table rooms are frequently impossible to obtain.

Dwinelle's problems, as defined clearly by the units themselves and as analyzed in the summaries, can definitely not be solved by the trading or shifting of space now available to the resident units. It is essential that at least approximately 7,000 ASF be cleared and reallocated to existing units as an initial step. Thus the task force recommends major moves of units from the building. These adjustments are intended not only to alleviate existing problems in Dwinelle but also to assist in helping other buildings (Dwinelle Annex, Durant and Stephens) to begin to solve their problems. Concrete suggestions for relocations and expansion in Dwinelle have been submitted by the task force and can be found in the full text of the task force report.

#### DWINELLE ANNEX

Dramatic Art. A specific proposal for renovation of Dwinelle Annex has been formulated. The entire building should be assigned to Dramatic Art, and the oversized, inadequate, badly-lighted library in Dwinelle released. A lounge or green room is badly needed.

To begin the renovation it is recommended that Subject A and miscellaneous faculty offices be moved to Dwinelle A level as soon as it is vacated by NES. At some later date, Subject A and English as a Second Language could be consolidated in Room 111 Wheeler.

Subject A. The present space for Subject A is well located and adequate, although subject to periodic overcrowding. Remodeled offices in Dwinelle Annex would be needed to provide more consultation space. Subject A and ESL (currently in T-2241) should be in the same location. Until this is possible, Subject A should be moved to Dwinelle A Level after NES vacates. (Subject A and ESL should ultimately be consolidated in Wheeler.)

## DURANT HALL

**Oriental Languages.** Oriental Languages offers courses on the languages and literatures of China, Japan, Korea, Tibet, Mongolia, and Inner Asia. The greatest space problem confronting the Department is shortage of offices in Durant Hall. Not only is there no room for expansion, but there is presently inadequate space to house the many lectures responsible for the beginning courses of Chinese, Japanese, and Korean. A partial solution would be the remodeling of the east side of the main floor of Durant Hall (Rooms 101, 103, and 105) to allow for the construction of new offices. Otherwise the Department requests higher priority in the allocation of office space in adjacent buildings.

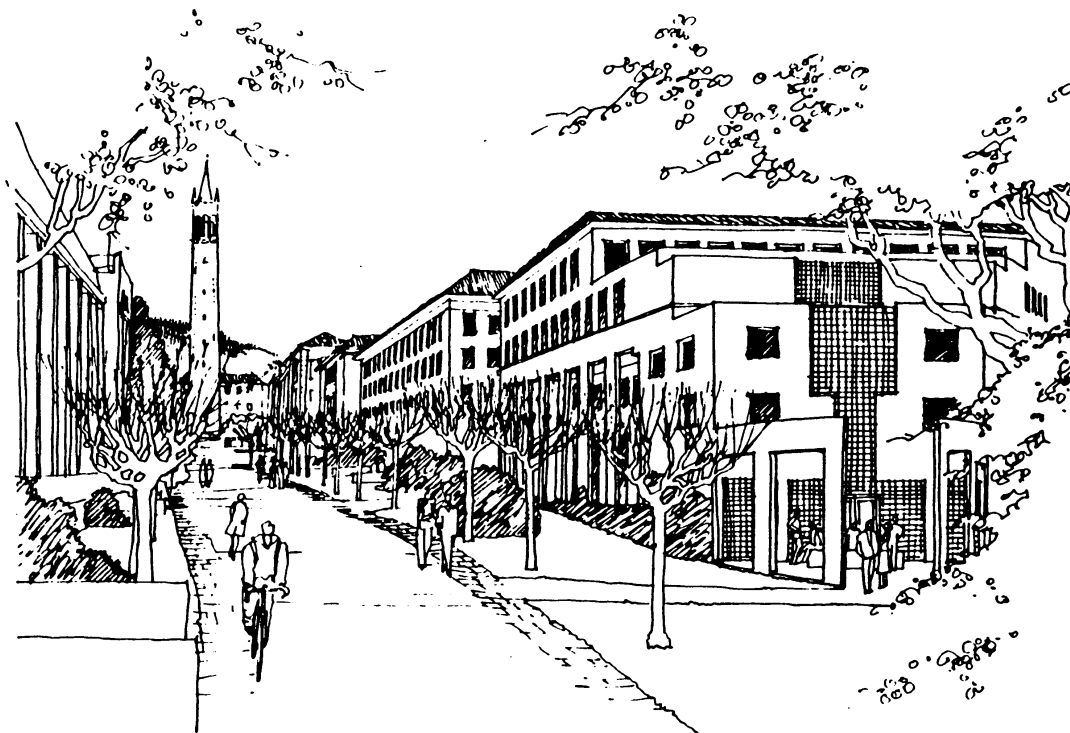
It is recommended that after NES vacates Dwinelle, Oriental Languages faculty now scattered about Dwinelle, and any additional rooms needed by Oriental Languages, be relocated to A level until consolidation is possible in Durant.

The Department projects the need for about 1,350 additional ASF in Durant.

### Summary

Durant is shared by the Department of Oriental Languages and the East Asiatic Library. Both have outgrown it. The Library is seriously overcrowded. There is no long term solution to the problems of the East Asiatic Library short of a new building large enough to house its collection which has now been scattered to include materials in the Biology Library and in Richmond. The last few years have witnessed the breakdown in the effectiveness with which one of the great collections of Oriental books can be used. To make room for more recent acquisitions, large numbers of primary sources in Chinese and Japanese - essential to faculty and student research - have been removed from Durant Hall.

The problem of the Oriental Languages Department is largely a shortage of office



## PROPOSED DWINELLE ADDITION

space. In the next few years this will become critical with respect to faculty FTEs as new appointments are made while offices remain in use by emeriti and those who have opted for phased retirement. Presently there is not enough room for the many lecturers and associates responsible for much of the instruction in the first- and second-year Chinese, Japanese, and Korean language courses. Even with restricted enrollments, the growing popularity of these languages indicates that the courses will for a long time to come require a large number of sections. Yet even now those required to teach the sections have inadequate room for preparation and student consultation. Some have to share office space with administrative staff in the

Department office. Room for visitors is out of the question - an embarrassment given the growing number of programs with the People's Republic of China. A possible solution to the problem of office space would be the renovation of the east side of the main floor of Durant Hall. Additional offices are needed for two new faculty FTEs and room for the three faculty FTEs and two lecturers now in Dwinelle. Two other offices will be required for emeriti or faculty on phased retirement. This adds up to a total of about 1,350 square feet. A design which emphasized utilization of Rooms 101, 103, and 105 Durant for offices and TA rooms should contribute to an effective solution to the space problem in Oriental Languages. Such a design was

used effectively for Room 106 Durant in the past.

### WHEELER HALL

Career Planning and Placement. CP&P is asking for consolidation of its scattered locations. The current space assigned in Room 111 Wheeler poses a number of problems. It is overcrowded, lacks privacy for advising, is poorly ventilated and badly lighted in certain areas.

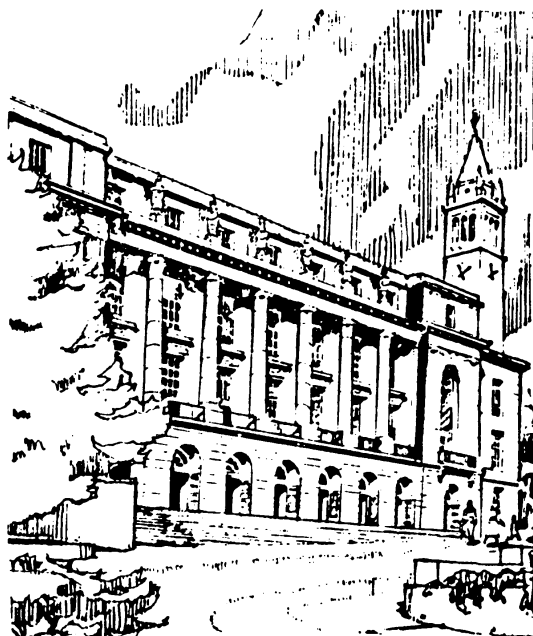
With proper renovation, Room 111 Wheeler would be excellent for Subject A and ESL. It is recommended that CP&P be relocated elsewhere than Wheeler.

English. The Department needs an additional office for a new journal operation (Representations). The Department will attempt to provide the space from within its existing allocation, but may not be able to do so without doubling faculty or removing emeriti.

English also requests more seminar rooms in Wheeler. Earlier discussions by English representatives led to the following ideas for alterations. Fold-up benches should be installed in the corridors to allow student seating (on floors 1, 2 and 3). TA offices in the north corridor of the second floor should be converted into seminar rooms and 100-150 seat classrooms and the TAs moved to Rooms 100, 200 and 210. These rooms can revert to classrooms when the TAs are eventually reassigned to Dwinelle Hall. A lunchroom should be established in the basement. Balcony doors on the 4th floor should be replaced, and lighting in all corridors and in Room 322 should be improved. Adequate security is needed on weekends. A deck above the auditorium roof should be constructed for use as a roof terrace.

Sponsored Projects Office. According to SPO its offices are adequate, but they will eventually need increased storage space.

Summer Sessions. This unit would like to be moved up to the first floor of Wheeler.



WHEELER HALL

The space they now have is adequate but the location does not make them visible enough. The only equivalent space is that now occupied by the Chicano Studies Library. If, with the adjustments recommended for Dwinelle, there were enough space for the Chicano Library to adjoin the Department, it would be desirable for Summer Sessions to move to the first floor of Wheeler.

#### Summary

Wheeler Hall houses three self-contained units - the English Department, Summer Sessions and Sponsored Projects. The other units assigned to the building are spill-overs. Some are from their home base of Dwinelle Hall, i.e., TA offices for Comparative Literature, French, German, History, Linguistics, Native American Studies and Slavic Languages, and the Chicano Studies Library. Career Planning is scattered among four locations; 111 Wheeler is one of them. The Buildings and Campus Devel-

opment Committee, part of the Chancellor's Office, occupies Room 120, a converted classroom.

Sponsored Projects has requested a storage room of 150 square feet. There are windowless offices in the basement of Wheeler that are better suited for storage than offices and one of those might be assigned to Sponsored Projects.

Career Planning and Placement should be consolidated in one location instead of its present four, and Room 111 Wheeler should be assigned to Subject A and ESL.

There are 24 general assignment classrooms and one seminar room (which the English Department created from within its space) in Wheeler, varying in capacity from 20 to 60 students. As noted in the Phase I report, they are in need of paint and patching, wall outlets and light shades. There is a shortage of both seminar rooms and large (100-150 seat) classrooms in Wheeler as well as on the campus as a whole. The fire code has limited the large corner classrooms which previously had a 100 seating limit to 50 students. TA offices in the north corridor of the second floor should be remodeled into classrooms of varying sizes (seminar and 100-150 seat capacity) and the TAs moved to Rooms 100, 200, and 210. When those TAs are eventually reassigned to Dwinelle, the rooms can revert to classrooms or they can be assigned to fill other outstanding needs such as undergraduate study space, additional space for a new journal to be housed by the English Department, small offices for visiting faculty and emeriti, or temporary faculty research space for special projects (these would all require construction within the space). The space the TAs now occupy is ill-suited for student consultation and the space is generally ill used.

As noted in the Phase I report, there is a security problem in Wheeler because of the heavy use of the auditorium and classrooms on weekends and evenings. Classes should not be assigned to the building on weekends unless adequate security is provided.

Toilets are not sufficient for the numbers of female students using the facilities, nor are they properly maintained during the day. Both a daytime custodian and expanded toilet facilities are needed. The huge basement men's room should be converted to two - a men's toilet and women's toilet.

The elevators break down with regularity, making the second floor classrooms inaccessible to handicapped students.

#### MOSES HALL

Institute of Governmental Studies. IGS is planning to seek approval to build a small extension to Moses Hall. Since IGS should not encroach upon space of the Department of Philosophy, there is no objection to the new construction under consideration. It is naturally hoped that any new space resulting would provide additional space for other units in the building.

Philosophy. There is a lack of cubicles (which permit privacy for consultation) for TAs. These could easily be installed in Room 301 Moses, which now serves as the TA room. The Department has requested that Room 301 be remodeled for this purpose since there is no other appropriate space available in the building.

No adequate accommodations for emeriti exist at the present time. Two Philosophy faculty members reside in Dwinelle. It is recommended that two additional faculty offices be made available for them in Moses.

#### Summary

Moses Hall, owned by the ASUC until 1959, is at present occupied by three major units, the Department of Philosophy, the Institute of Governmental Studies, and the Institute of International Studies. Together the three units use 93% of the assignable area. The rest is used by other units such as the Chancellor's Office, IEAS, Systemwide Administration, Sociology, and TIES, each of which maintains one room in the building. There are also four emeritus offices.

On the whole Moses Hall seems to serve its occupants well and they are generally satisfied. Maintenance is rated good in this building. Fire and life safety, structural safety, and utilities are rated fair but accessibility is rated poor.

The main problem, as elsewhere, is lack of space. After many years in Moses Hall, the Department of Philosophy has still not found accommodation for two of its professors whose offices remain in Dwinelle Hall. Some of the offices available for faculty seem inadequate and there are no offices for recent emeriti and for expected future appointments. The teaching assistants of the Department occupy Room 301, which is spacious but unsuited for consultation or study.

Both IGS and IIS are planning large scale expansion. IGS has not submitted a Phase II report on its current and future space needs, but the Phase I report indicates that the Institute considers itself "hampered by space limitations." IIS, which has 81 offices with 15,587 square feet (22 of these in Moses Hall), projects an expansion to 88 offices with 16,412 square feet.

In considering space planning in Moses Hall it is important to recall the old long standing campus rule that only teaching departments should occupy central campus buildings. Moses Hall, in fact, possesses an ideal location for teaching purposes. Nevertheless, of its three main occupants only Philosophy is a full teaching department. IGS does not engage in teaching and IIS, for the most part, only coordinates teaching carried out by other departments. A natural space solution would be to relocate IGS or IIS or both into buildings off the central campus. Such a move would probably be easiest for IIS which already conducts most of its operations from outside Moses Hall.

There are two possible conversions for Room 301. The simpler and cheaper one is to install cubicles for the teaching assistants. The second, a more ambitious and more useful conversion, would involve the

transfer of the TA office to some other room, the installation of an extra staircase for fire safety and the transformation of Room 301 into an auditorium for Philosophy classes. (There are, at present, no classrooms in Moses.) Another more complex solution would be the installation of a mezzanine floor in the space of Room 301 and the construction of new faculty and TA offices.

#### STEPHENS HALL

Academic Senate. "The Secretariat of the Academic Senate serves as support staff to the Berkeley Division and Statewide Committees of the Academic Senate...including consultation concerning Divisional and Statewide Senate procedures, By-Laws and Regulations, relationships between the Senate and other agencies (e.g., Campus and Statewide Administrations, other Divisional Senates, various offices in Sacramento, ASUC/GA, the press)...Senate structure and responsibility undergo constant change and fluctuation in response to external forces (e.g., conversion to a Semester System, new assignments for the Committees on Faculty Welfare, various Federal and State legislation, housing various Statewide Senate Committees and the Statewide Senate Office)."

The occupants state that although present facilities are adequate, problems with heating, leakages, and other structural problems exist (as outlined in Phase I).

Because of the involvement of some 300 faculty members serving on Berkeley and Statewide Senate Committees, it is essential that this office remain centrally located.

There may be some increase in faculty and/or staff FTE as changes in Senate responsibilities occur, which could in turn, result in the need for increased space.

Professional Development Program. "The Professional Development Program operates an outreach, affirmative action program functioning at three educational lev-

els - High School, Undergraduate, and Graduate - serving some 500 students. All elements are closely related and there are no distinct sub-units which can be physically separated."

The current report is based on previous documents, with the notation that "as of July 20, 1981, PDP has been given the additional space it needs."

Teaching Innovation and Evaluation Services. TIES is satisfied with its space and location and does not wish to move.

Office for History of Science and Technology. This unit's mission involves teaching and, more particularly, research in the interdisciplinary area specifying its title. Its space has recently been increased slightly, but it continues to request a modest amount of additional space for its activities.

#### Summary

Basically, the present space allocations in Stephens Hall seem to be functionally acceptable, with the exception of the Institute of East Asian Studies, "which expressed a desire to move elsewhere, not from dissatisfaction with the location and nature of its space, but because greater importance is given to consolidation of its scattered activities at one site."

Overall, Stephens Hall houses a collection of seemingly disparate units, with little interaction among them - yet they are desirably located for the users of their services because of its central location. The units are academically oriented, serving both faculty and students. Many units are within reasonable proximity to related units - e.g., the Library of the Institute of International Relations is located in Stephens, and the main offices of the Institute are across the courtyard in Moses Hall.

Several units share office equipment, such as copiers and word processors.

The one unit which seems out of place in Stephens Hall and should be regrouped with the School of Public Health is the School's program in forensic science.

The structural deficiencies outlined in the Phase I report can only be re-emphasized in this statement.

#### SOUTH HALL

Library & Information Studies. The School currently has the use of all of South Hall proper (i.e., excluding the Annex), other than ground floor areas occupied by the Library School Library.

Utilization is close to capacity. Present projections include a slight increase in faculty office needs. There has been some discussion of reestablishing an Organized Research Unit for which new space would be needed. The School is ideally located in the Humanities and Social Sciences precinct and adjacent to the General Library. The only other campus groups with which the School has currently significant affinities are the Computing Center (in Evans, nearby) and the Media Center (in Tolman).

The South Hall location is ideal for the School. South Hall itself is adequate. Even if there were unanticipated increases in space needs, expansion into South Hall Annex could meet all foreseeable needs. Seismic strengthening should be sought. Urgent attention should be given to the exterior of the west porch, the ventilation of Room 207 offices, the roof, the elevator and the provision of handicapped access.

#### SOUTH HALL ANNEX

Center for Studies in Higher Education. The Center has occupied South Hall Annex since 1977. The Annex had previously been used by a dissolved Organized Research Unit associated with the present School of Library and Information Studies. The CSHE staff feel that the location perfectly suits their need since it is accessible and

central with handicapped accessibility as well. The Center's space went through substantial renovations and modifications at the time of their move. The CSHE does not anticipate any changes in the number of staff, visitors or space to accommodate them.

#### BARROWS HALL

Business Administration. In addition to housing its academic program for graduate and undergraduate students in Barrows Hall, the School of Business Administration includes or is associated with the following professional efforts - Berkeley Program in Finance, Center for Real Estate and Urban Economics, Business School Computer Center, Career Planning and Placement Center, Writing and Speech Program, and Center for Research in Management.

Overcrowding has resulted in loss of faculty, student and staff commons rooms, and a shortage of faculty study space with reduced efficiency.

This report is somewhat abbreviated, and refers to the details provided by the Barrows Hall Space Subcommittee in June 1981. Comments and observations included in the Phase I report should also be studied carefully in space allocation and alteration in Barrows Hall.

Units need to be regrouped, rather than scattered throughout the building, as detailed in the Phase I report.

With a significant planned increase of 38 academic FTE and 14 staff FTE, efforts are underway to fund a new building with support from private sources. The target date is five years hence.

Expansion plans include the following provisions: Major new facilities will include a library (20,000 ASF) and conference areas, (1,800 ASF). Substantial increases in existing facilities include provisions for instructional facilities (7,107 ASF), academic personnel (5,890 ASF), external affairs (1,000 ASF), and lounges and student rooms (2,000 ASF).

Center for Research in Management. The Center for Research in Management is an Organized Research Unit closely associated with the School of Business Administration. The Center's space was recently reduced by the transfer of part of Room 61 Barrows to the School. The situation at present is satisfactory although there is certainly no extra space available. However, in the coming years the Center expects to not only maintain current activities but broaden them.

Economics (Barrows and Evans). Now that Economics will likely not be consolidated in Evans Hall, its needs must be addressed in Barrows. Some of these needs can be solved without additional space; others may require an estimated additional 2,500 ASF.

The latter category includes 1,280 additional ASF for faculty based on the Department's projected increase of up to nine ladder positions between 1980-81 and 1984-85. The remainder is made up by more TA and computer-related space. (In this regard, it should be noted that Economics possesses - in comparison to other social sciences - a relatively large amount of "luxury space," such as conference, laboratory, lounge, and graduate student study space.)

Economics also presents suggestions that do not require space, but do require money. Redesigning and dividing rooms, repairs, etc. would make their space use more efficient. One of their major complaints is the fragmentation of space - a problem faced by other Barrows units and one that might be addressed in a comprehensive manner if a unit moves from the building.

Institute of Business & Economic Research. Because of limited space, IBER has been curtailed in accomplishing its "mission to facilitate the research activities of the members of the Berkeley faculty in the area of economics and business administration and to assist in the training of graduate students in the same areas..."

The Center for Real Estate and Urban Economics and the Research Program in Finance are developing into permanent units with expanded programming and should have their own space to free the Institute's space to meet its other future needs. Space should be available to accommodate a modest program for visiting scholars.

The Institute seems to be oriented primarily toward academic efforts, and therefore on-campus space may be justified. The strength of the future relationships between the Institute, the School of Business Administration, and the Department of Economics is not yet sufficiently clear. If a new building is provided for Business Administration, IBER may or may not remain in Barrows.

Expansion plans project that by 1984-85 there will be an increase of 9 paid academic FTE, 4 staff FTE, and 7 unpaid academic participants, plus an increased need of 1,400 ASF, including accommodation of word processing equipment.

Institute of East Asian Studies (Durant, Dwinelle, Stephens, Barrows). The Institute is responsible for promoting and coordinating interdisciplinary research on subjects relating to East Asia and has thus amalgamated earlier programs including: the Center for Chinese Studies (founded in 1958), the Center for Japanese Studies (1961), the Center for Korean Studies (1979), the Group in Asian Studies (1975), and the Stanford-Berkeley Joint East Asia Center (1973). But the Institute's inability to consolidate its space (which presently ranges over four separate buildings) seriously impedes the accomplishment of its main mission. If possible, space should be made available in Evans for this purpose.

Political Science. The needs of Political Science for an additional 1,700 ASF over a current 13,500 ASF arise from an extremely large and apparently growing undergraduate program (920 majors). As with Sociology, this request was already reduced down

from an earlier, larger request. The bulk of the request is for 500 more ASF for TA offices and 500 more ASF for administrative staff and its files. There is also a request for three additional faculty offices.

Political Science's fate depends on the collective fate of Barrows. Given the relatively modest request compared to an apparent need, some relief is in order.

Sociology. Sociology's request for additional space -2,700 ASF over a current 11,000 ASF -includes only 640 ASF for an additional projected four faculty. The bulk of the new space is to meet needs that the Department feels are extremely critical for its graduate program: a computer laboratory, a library-study, and more office space for TAs, RAs, and graduate research.

Part of that need might be met, it suggests, by renovating some current space, but at least a few additional rooms and renovation funds will be required.

(The request from Sociology, it should be noted, - as in the case of Political Science - was reduced as a result of negotiations in the Barrows Hall Space Subcommittee.)

A suggestion has been made that Sociology move to Evans. Without a poll of the faculty, it is impossible to state definitely the Department's position, but the chair believes that unless - or even if - the move yields a substantial increment in space, the faculty are likely to resist.

### Summary

The major problem in Barrows Hall is lack of space. All the resident units complain of problems arising from space shortages - cramped administrative space, absence of studies for expected growth of FTE, lack of adequate general-purpose space such as seminar rooms and labs.

Business Administration's needs and requests are the greatest. With an expand-

ing student body, faculty, and supplementary management programs, it is clearly at a disadvantage in comparison with other business schools. The Institute of East Asian Studies has also requested a great deal of space, in part to consolidate its operations now scattered in four buildings and in part to house visiting faculty, staff, and an expanding library. Sociology's requests focus on space for graduate students and the graduate program, such as a computer laboratory and a library-study. Political Science's more modest requests stem from the need to house staff and assistants serving a huge undergraduate program. Finally, Economics has turned its attention back to Barrows with a request for space largely to house expected new faculty.

When it appeared that Economics was moving to Evans Hall, a solution was available. The Barrows Hall Space Subcommittee's report of May 1980 partitioned and consolidated the space Economics was expected to vacate, and this was the basis of the "negotiated" space requests of the remaining departments. That plan now appears unworkable.

Were it possible to move one of the smaller Barrows units to Evans - IEAS or Sociology - and assuming no new unit were moved into Barrows, that vacated space could be used temporarily to ease the stress. (A bureaucratically efficient and arbitrary plan might be to assign Economics a bit of the vacated space and then to prorate the allocations of the May 1980 plan. It would still be necessary to trade rooms around in order to make efficient use of the space.) Business Administration could expand in the basement into IEAS space and yield some to Political Science, which could in turn yield its fourth floor space to Sociology. The task force urges consideration of such a step. In addition, almost everyone finds Barrows Hall a dismal building. Climate control is a disaster, maintenance is poor, security is questionable, and the layout is depressing. It is inhospitable for

staff and intellectual endeavor. Although fundamental changes perhaps cannot be made, a major investment in repair and redesign (i.e., for semi-public spaces) would probably achieve significant improvements.

Along these lines, the various units in the building have made recommendations for restructuring their space so as to increase the efficiency of its use.

#### ART GALLERY

Police Department Bicycle Bureau. The PDBB is a service unit whose purpose is to develop programs to regulate the safe use of bicycles, mopeds and skateboards on campus for users and pedestrians.

Space is adequate for current needs, but increased storage space may be needed for confiscated bicycles.

Complaints of occupants are as follows. The area is always too cold, lighting and wiring are inadequate, there is no custodial service and there are no restrooms.

The Phase I report reveals that the Art Gallery now houses active files, used daily, for several units located in the vicinity, in addition to the Bicycle Bureau. Consideration should be given to proper utilization of such prime, central campus space, especially in the light of overcrowding of academic units in nearby buildings and comments and recommendations in the Phase I report.

Active files should be regrouped with the units to which they belong, for efficiency and productive use of staff time. Methods of storing permanent vehicle registration files should be considered, e.g., microfiche, to reduce space required for such records. Renovation, as described in the Phase I study, could permit more constructive use of this space.

Services provided by the Bicycle Bureau will probably increase as parking in and around the campus decreases. Therefore, proper planning at this time is in order.

#### CALLAGHAN HALL

Aerospace Studies. No request for alterations or additional space has been made.

Naval Science. Space is adequate for present needs.

#### DOE LIBRARY

Art History. The Department's location in Doe is ideal. Art History needs a lounge (250 ASF) and suggests Room 413 or part of the Library's staff lounge (Rooms 424-432) for this purpose. Two emeriti offices will be needed in the future if two remaining FTE positions are filled. Storage space is needed (200 ASF). The slide collection should expand into Room 307 which would necessitate a door being cut. The photographer's darkroom (240 ASF) should be moved from Kroeber to Doe or Moffitt. A TA office (250 ASF) is needed in Doe or Moffitt. Finally, the photo archive needs expansion (space is available behind the elevator in Moffitt).

#### TOLMAN HALL

Education. The School of Education would like the following changes: return of Room 2519 to its original status as a staff lounge (presently is used as a classroom by OAR), improvement in ventilation in Rooms 5634, 5638, 5642, and 5648, expansion of computer facilities and more space to house research groups.

Psychology. Large classrooms are lacking in Tolman Hall to accommodate the present student enrollment patterns. There exist only limited human and animal laboratory facilities. The latter are substandard according to the detailed report submitted. Ventilation in the animal quarters still needs to be improved.

## CAMPBELL HALL

Division of Special Programs. The Division of Special Programs, housed in Campbell Hall, gives a number of courses (with enrollments exceeding 100) using audio-visual materials not only as aides but indeed as the very content of the course. Classrooms with facilities for film and video-playback are often given to courses in Journalism. Although more rooms in Dwinelle have been equipped, the demand for these rooms will exceed the ability of the Educational Television Office to accommodate those who need them for instructional purposes. Just as important to the program is the very pressing need for 360 ASF of space for temperature-controlled storage of the Division's film library. It is suggested that assignment of storage space for Educational Television and DSP be considered for a remodeled Zellerbach basement.

## 2607 HEARST AVENUE

Graduate School of Public Policy. This unit is one of the few in precinct 4 that is wholly satisfied with its space. As the Phase I report and the Graduate School's own response to our survey indicate, this beautiful building is well suited to the program's needs. It is, in fact, the kind of facility that many programs ought to have. The unit has requested assistance in repairing the roof and with other maintenance needs, requests with which the task force concurs.

## HAVILAND HALL

School of Social Welfare. The School of Social Welfare indicated to the task force that they "really have nothing to say" on the matter. It is assumed that the School has adequate space at the present time and does not need additional space in the foreseeable future. The Phase I report, however, describes a number of space deficiencies as regards the School's programs.

## HARMON GYM

Military Science. Military Science is unable to provide information at this time because they expect to be relocated into new quarters in the Harmon Gymnasium next year. Their present space is understood to be generally adequate.

## CONCLUDING REMARKS

Based on the responses received from the forty-six units surveyed for the Phase II report of the Berkeley Campus Space Plan, it is apparent that the projected additional space needed for precinct 4 is 71,593 ASF. This figure is detailed in the table included with the full task force report, and includes an additional 1,350 ASF for Oriental Languages not entered in that table. (Units closely related to the Humanities and Social Sciences but residing in other precincts project a need for 3,225 additional ASF.) Only a relatively small portion of this need is considered deferrable. This means that most units ought to have a significant increase in assigned space now.

Solutions recommended for precinct 4's grave problems by the precinct 4 task force fall into four categories: (1) relocation of major units from one existing building to another; (2) adjustments and exchanges of existing space assignments within buildings; (3) construction of additions to or renovation of existing buildings; and (4) construction of new buildings. A further analysis of the aforementioned four points follows.

(1) For Dwinelle, the recommended removal of NES and SSEAS (to Evans Hall) would release approximately 7,000 ASF. While this amount falls far short - by approximately 10,000 ASF - of the projected space needs, it seems a reasonable and workable beginning at relieving the unacceptable and unconscionable crowding in that building. For Barrows, the recommended removal of IEAS (to Evans) would release about 4,000 ASF for reassignment to other units now in

Barrows. This would provide a barely noticeable portion of the 47,525 ASF additional space needs projected. This latter figure includes the space requested by Business Administration which it plans to have with the construction of a new building. Until that building becomes a reality, the relocation of IEAS out of Barrows would provide at least some relief. For Wheeler, the removal of Career Planning and Placement to another location would permit Subject A (now in Dwinelle Annex) and English as a Second Language (now in 2241 College, which should be scheduled for removal or demolition), to be consolidated in Room 111 Wheeler. CP&P should be consolidated elsewhere. In Dwinelle Annex, the suggested removal of Subject A (initially to Dwinelle A level and later to Room 111 Wheeler) would enable the renovation of the Annex to get underway.

If at a future time new or remodeled space becomes available, provision should be included for the Anthropology Department; the Lowie Museum; an archaeological facility that could be shared by archaeologists in Anthropology, NES, Classics, and SSEAS; and additional lab space for that now lacking in Tolman (Psychology). Such a plan would relieve pressures now in Kroeber, permit the needed expansion of Lowie Museum, would remove academic units now in very substandard houses (Piedmont and College houses), and would develop the economy of shared laboratory facilities.

The task force hopes that the suggested relocation discussed directly above will be given serious consideration and that the Dwinelle, Dwinelle Annex and Barrows adjustments may take place no later than Summer, 1982.

(2) The adjustments and exchanges of space made possible by the relocations recommended under (1) have been described in some detail in the summaries for each building. While these adjustments will surely cause happiness in some quarters and perhaps discontent in a few, they would on balance be a step in the right

direction toward solving the serious problems of unconsolidated and overcrowded units and colleagues.

(3) The approved plans for the reassignment and renovation of Dwinelle Annex are to be lauded. This would permit Dramatic Art to release its (non-theater) space in Dwinelle, thus further relieving the overcrowding in that building.

The plan for an addition to Moses will assist IGS and possibly other units in Moses.

As the report on Durant Hall suggests, a remodeling of the interior of the first floor would enable all the Oriental Languages faculty to be consolidated in Durant and would help ease the pressures in Dwinelle.

The Art Gallery presents a special problem because it is structurally unsound; yet no one advocates its demolition. The task force recommends that, if possible, the interior be reinforced and redesigned, leaving the exterior murals and architecture intact. Toilet facilities should be added, and the building should be utilized either as an art gallery or assigned to the Music Department (e.g., for its gamelan) or to the Dramatic Art Department for drama and dance activities.

Other originally impressive rooms such as Howison Library in Moses or the Graduate Commons in Stephens are disgracefully neglected under the policy of "deferred maintenance." The Berkeley campus must improve maintenance in general and develop further the aesthetics of the campus.

(4) The task force supports the request of Business Administration for a new building of its own. As to the site, the area north of the Law School buildings appears preferable to that of Hearst Gym's west playing field since the campus should not lose more open space. (Though 2241 and 2243 College are candidates for demolition, the precinct 4 task force prefers to see these two houses moved and restored as "historic

houses," the last two remaining faculty homes of 100 years ago. According to oral tradition, Jack London used to read his stories aloud in front of the 2241 College fireplace.)

Not wishing to be accused of having an appetite for pie in the sky, the precinct nevertheless urges serious consideration of a new building for the Humanities, located in the Dwinelle parking lot. This building is envisioned as a low structure similar in concept to the Bechtel Engineering Center. It would provide underground parking, a Humanities Library, seminar rooms, graduate student commons, visiting professor and emeriti space, and a park-like terrace on the top. Such a structure would permit consolidation of many of the departmental libraries now in Dwinelle and would provide flexible space for students, visitors, etc. This new structure would go a long way toward giving some measure of visible vitality, prosperity and equity to the long-suffering and long-neglected humanities.

In conclusion, the members of the precinct 4 task force would urge that, unless new space can be provided in the very near future for the many overcrowded, poorly equipped and poorly maintained units in this precinct, some ORUs, academic service units, various nonteaching centers, and some administrative offices be removed from central campus locations. Priority for the central campus must be given to academic units that provide courses of instruction. It is obvious that a fair and clear campuswide policy on this issue has not been developed. It is also obvious that current space guidelines are wrongfully biased in favor of administrative services, to the detriment of academic staff and concerns. It is noteworthy that the guidelines provide 200 ASF for a dean (who may need only a desk, one table, a few chairs, a file cabinet and a bookcase) whereas a professor normally receives approximately 130 ASF (for a desk, two tables, two or more file cabinets, six to eight chairs, four to ten bookcases and a word processor). An L&S College advisor normally receives twice as much space as a

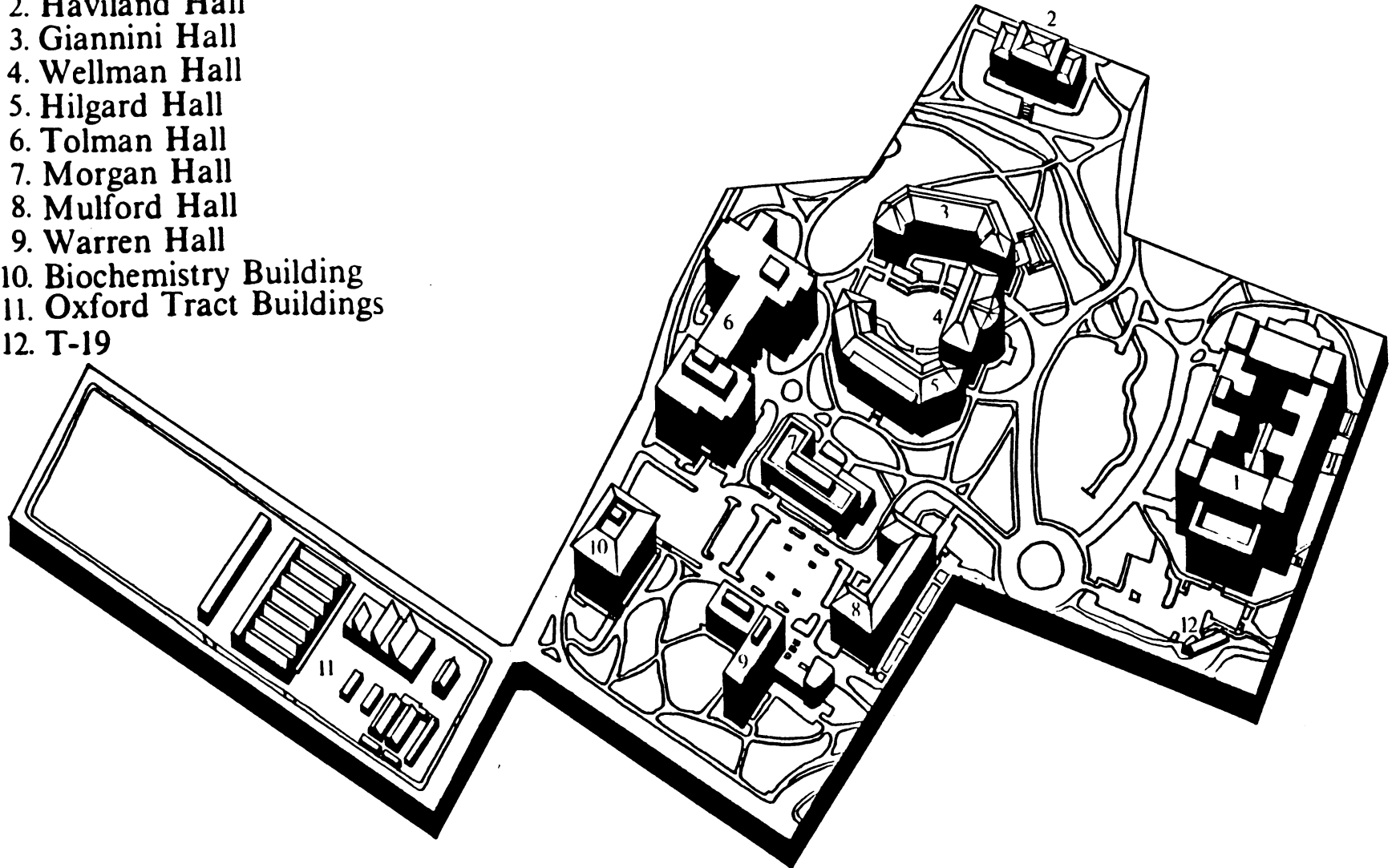
lecturer or teaching associate. A reexamination of priorities is overdue.



# Agriculture and Life Sciences

## Phase I Precinct 5 Overview

1. Life Sciences Building
2. Haviland Hall
3. Giannini Hall
4. Wellman Hall
5. Hilgard Hall
6. Tolman Hall
7. Morgan Hall
8. Mulford Hall
9. Warren Hall
10. Biochemistry Building
11. Oxford Tract Buildings
12. T-19





## PHASE I - SURVEY

### PRECINCT 5 OVERVIEW

#### Agriculture and Life Sciences

##### Buildings and Landscape

The Agriculture and Life Sciences precinct occupies the northwest corner of the campus and includes the Oxford Tract, a two-block piece of land which is surrounded by non-University property. The major portion of the precinct (other than the Oxford Tract) is bounded by Hearst Avenue on the north and Oxford Street to the west. The eastern edge skirts around University House and abuts Observatory Hill, a natural area used in biological studies. It is further defined by the western end of Moffitt Undergraduate Library and by Harmon Way, west of California Hall. The southern edge follows Campanile Way south of the Life Sciences Building (LSB) from Campanile Way's intersection with Harmon Way to its intersection with Cross Campus Road. At that point the precinct's boundary follows the eastern edge of Eucalyptus Grove, including temporary Building T-19, to the West Circle, then west to the West Entrance and Oxford Street.

The Oxford Tract is bounded by Virginia Street on the north, Oxford Street on the east, Hearst Avenue on the south and Walnut Street on the west. Largely surrounded by residences, the Tract has been developed with a number of laboratory and greenhouse buildings on the southern half, while the northern half is used for open field planting.

The precinct is thus basically a rectangle at the campus' northwest corner, from which University House and its gardens are excluded but to which two appendages are added, the Oxford Tract to the northwest, and the Life Sciences Building and T-19 to the southeast.

The unique character of this portion of the campus is due to the predominance of the landscape and the venerable old trees and groves. The North Fork of Strawberry Creek forms a dense belt of trees which penetrates the center of the precinct be-

fore going underground north of LSB. The South Fork with its oak woodland and the great Eucalyptus Grove provides a strong buffer from the activities of the athletic fields to the south.

Except for the cluster of newer buildings at the extreme northwest corner (the Biochemistry Building and Warren, Tolman and Morgan Halls), the neoclassical architecture lends further harmony and consistency to the precinct. The older buildings are set widely spaced within the landscape rather than forming smaller spaces and courtyards. Thus the open space dominates, a flowing, picturesque landscape tying the area together in a pleasant pastoral setting. This unique quality of the campus provides a strong, favorable impression for those visitors who first enter the campus from the west. This quality of openness should be preserved as the density of the campus increases in the future.

With the major exceptions of Tolman Hall and most of Haviland Hall, which house the Schools of Education and Social Welfare and the Department of Psychology, all the precinct's buildings are devoted to teaching and research in the life sciences. These life sciences units are administered under the College of Letters and Science, the College of Natural Resources (CNR) and the School of Public Health.

The Oxford Tract is administered by CNR and partially houses a variety of departments of the College. The two adjoining Insectary buildings are used exclusively by Entomological Sciences, as are Greenhouses 21 and 22 and two temporary trailers. The new Natural Resources Laboratory is assigned to Genetics, and Glasshouse 2 to Plant and Soil Biology. The remaining two buildings, the Oxford Research Unit and the neighboring Lath House, are used by a variety of units in CNR, including Plant Pathology, Forestry and Resource Management, and Agricultural Operations in addition to the three units just mentioned. The northern fields are used by various departments for faculty research with a section at the northwest corner reserved for student research.

The precinct buildings on the campus proper can be described in four groups by geographical location. The extreme northwest edge includes the five newest buildings in the precinct, which form a U open to the north and enclosing a large parking lot. Beginning at the northwest corner and proceeding counterclockwise, they include the Biochemistry Building and Warren, Mulford, Morgan, and Tolman Halls. The Biochemistry Building houses the Biochemistry Department and the Biochemistry Library. South of Biochemistry is Warren Hall, housing the largest part of the School of Public Health, in addition to the Public Health Library and the Cancer Research Laboratory. At the south end of this building cluster is Mulford Hall, architecturally the most compatible of the post-World War II buildings with the rest of the precinct. Mulford houses Forestry and Resource Management, the Forestry Library and, on the third floor, the Department of Genetics. (Substation No. 3 is located north of this building, entirely underground.) Mulford's neighbor to the north, Morgan Hall, is occupied almost exclusively by Nutritional Sciences. Tolman Hall, designed as two blocks with a connecting bridge open at ground level, houses the Department of Psychology to the west and the School of Education to the east, and also provides space for two Organized Research Units (the Institute of Human Development and the Institute of Personality Assessment and Research) and the Education-Psychology Library.

The second cluster of precinct buildings is the neoclassical trio of Hilgard, Wellman and Giannini Halls known as the Agricultural Complex and used for various CNR activities. These have been nominated as a California State Landmark and for inclusion in the National Register of Historic Places. Hilgard Hall houses most of Plant and Soil Biology and Plant Pathology, and some Entomological Sciences activities. Wellman Hall is exclusively used for Entomological Sciences, including the Entomology Library. Giannini Hall houses a range of units, including five I&R departments (most notably Agricultural and Resource

Economics), the Giannini Foundation of Agricultural Economics, Cooperative Extension, the CNR Office of the Dean and the Natural Resources Library.

Across the North Fork of Strawberry Creek east of the Agricultural Complex, Haviland Hall stands rather isolated physically from the rest of the precinct and, in fact, from any other campus building. It houses components of Public Health and the Seismographic Stations, as well as the Social Welfare Library, but its major occupant is the School of Social Welfare. It too has been nominated for inclusion in the National Register of Historic Places.

The Life Sciences Building, the largest single building on the campus, is also physically isolated from other permanent buildings. LSB contains over a quarter of a million assignable square feet used by nearly twenty different units. Besides five I&R departments in L&S (Biology, Botany, Microbiology and Immunology, Physiology-Anatomy and Zoology), the building houses the University and Jepson Herbaria, the Museum of Vertebrate Zoology, elements of the School of Public Health, the Biology Library, the Division of Animal Resources and other units. Just west of LSB is temporary Building T-19, assigned temporarily to Public Health and scheduled for early removal from the campus.

Architecturally the most distinctive outdoor space of this precinct is formed by Hilgard, Wellman and Giannini Halls. Originally conceived to represent a Tuscan farm courtyard, the space is a large, treeless parking lot. The edges along Giannini and Hilgard Halls are enhanced by formal plantings of London Plane Trees and Lombardy Poplars along pedestrian pathways. Each building contains handsome brick stairways leading onto the walkways. The latter would be more harmonious with the elegance of the buildings if they were paved with a more refined material such as brick and exposed aggregate concrete. The glare from the sea of cars mars the quality of the space. This could be reduced by the planting of more London Plane Trees to

shade the vehicles. Bicycle parking is inadequate, as indicated by bikes locked to trees and railings, and need to be better integrated into the space. This fine cluster of buildings and their harmonious plantings should be further enhanced with a sensitive redesign of this courtyard, perhaps as useable open space rather than or in addition to parking.

The other major open space enveloped by buildings is the large parking area surrounded by Tolman, Morgan, Mulford and Warren Halls and the Biochemistry Building. The minimal attempts to soften this space with landscaping have been unsuccessful, and it has been considered for the site of a major new biological sciences building.

The most dominant landscape feature of the precinct is the area east of the West Circle, actually only part of a much larger landscape element extending from the West Entrance to beyond Moffitt Library. This feature, which includes open manicured lawn areas on either side of Strawberry Creek, together with a naturalized border of blackberries, horsetails and various shrubs and trees along the Creek, is a major rest and recreation spot on campus. The open area follows the Creek to the north, becomes more woody and clears once again at University House. The alternation of woody, semi-wild areas and well-kept lawns is a pleasant characteristic of the precinct, found for instance west and south of Warren and Mulford Halls, or east of Giannini Hall. A number of small, wooden bridges also help give the eastern end of the precinct a pastoral, rustic quality.

#### Circulation

Along with ample landscaped open space, this precinct contains adequate parking facilities. These include four major surface parking lots plus Parking Structure A at Hearst and Scenic Avenues. The surface lots are located near Haviland Hall at the base of Observatory Hill; in the space formed by Giannini, Hilgard and Wellman

Halls; in the large area surrounded by Mulford, Morgan, Warren and Tolman Halls and the Biochemistry Building; and in the lot between the Life Sciences Building and the Eucalyptus Grove. A fifth smaller parking lot is located west of the Biochemistry Building.

Although none of this parking is available to students, the proximity of this precinct to the downtown Berkeley BART station and major thoroughfares (University Avenue, Hearst Avenue and Oxford Street) makes it easily accessible. Public transportation includes Humphrey Go-BART and AC Transit, which are accessible on University Drive or on adjacent city streets.

The principal central circulation routes for pedestrians are east-west via both Wickson Road (also a major vehicular road) and its companion path to the south between the North Fork of Strawberry Creek and LSB; and north-south via an extension of Hilgard Way, leading from the West Circle, between Morgan and Hilgard Halls, and under the central bridge of Tolman Hall to Hearst Avenue at Arch Street.

#### Space Occupancy

Excluding the buildings at the Oxford Tract and the soon to be removed temporary Building T-19, the Agriculture and Life Sciences precinct comprises ten buildings. Seven of these contain general assignment classrooms, and two house LBL-funded activities. The I&R departments in the precinct have very little space outside its boundaries. Such satellite space is limited to space rented for special projects, storage in Richmond or Edwards Track, some CNR space at the Gill Tract and in the Poultry Husbandry Building in Strawberry Canyon, and a component of Public Health in Stephens Hall.

In total, the precinct provides space for a Professional College with eight departments, three Professional Schools, seven departments in the College of Letters and Science, seven Organized Research Units, and eight branches of the General Library,

in addition to classrooms and various support units. The buildings in the Agriculture and Life Sciences precinct, including the entire Oxford Tract, contain approximately 794,000 assignable square feet (ASF) and 1,274,000 outside gross square feet (OGSF). This amounts to 19.5% of the central campus ASF and 18.4% of its OGSF. Excluding the 6.1 acres of the Oxford Tract, the precinct covers 33.3 acres or roughly 18.5% of the campus area. The precinct's average density is the same as that of the campus overall, with 20% of the land covered by buildings. In general, buildings are fairly uniformly distributed throughout the precinct, with the exception of the central open area east of the West Circle.

Space allowances under Restudy space standards, which have been used by the State for many years to assess the adequacy of interior I&R space in terms of amount, are compared with present space assignments in Table 1. Each of the disciplines shown has its own set of standards. Since the standards are not intended to apply to individual departments, breakdowns below the discipline level are not shown. Also, Public Health is not covered by Restudy standards, which were never developed for the health sciences. However, when the standards of related disciplines are applied to the School's programs, the School's actual space (excluding rented property) is only about 85% of the space need as determined by Restudy standards. The School's space shortage is compounded by the fragmentation of its program among five campus buildings (Warren, Haviland and Stephens Halls, LSB and T-19) and a number of off-campus rental sites. The biological sciences in general exceed the Restudy space allowances, while the College of Natural Resources shows a need for additional space. In fact, both agricultural and biological sciences departments are deficient in both quantity and quality of space. Space needs for equipment, research staff and entirely new modes of experimentation were not envisaged when the standards were originally developed, and this deficiency will form the basis for a substantial, multiphased capital improve-

ment proposal. The School of Social Welfare presently is short of space, but Psychology and Education's space allocations are generally adequate. The high percentage of actual to Restudy for Psychology is due in part to the inclusion of the Psychology Clinic within the Department's space.

#### Space Quality

The major space problem of this precinct is the inadequacy of existing space, in both quality and quantity, for the teaching and research needs of modern biology. This can best be understood through evaluating the age and condition of the precinct's buildings. In Table 2, these buildings are rated from one (very poor) to five (very good) in each of seven categories: age; program suitability; fire and life safety; structural safety; utilities; accessibility; and maintenance. (For the Oxford Tract, only the major laboratory and office buildings - the pair of Insectary buildings, the Oxford Research Unit, and the Natural Resources Laboratory - have been rated in this table.)

The buildings fall roughly into three groups. The poorest are LSB, T-19, Hilgard, Wellman, and Giannini Halls, and the Oxford Research Unit, the first three being the most deficient in the precinct. T-19 is a temporary structure scheduled for early removal from the campus, but LSB and Hilgard Hall are major buildings in serious need of extensive renovation. The latter two are mainly laboratory buildings designed for the biology of another era and serve their occupants poorly. Wellman and Giannini Halls, about midway between poor and fair, suffer from a mismatch of program needs and space characteristics similar to that of LSB and Hilgard Hall, but the problem is less severe because laboratory use is less intense. Program needs in Wellman Hall require fewer wet labs than in Hilgard Hall, and in Giannini Hall still fewer are required, the latter building being largely office and library space. Though the greenhouse portion of the Oxford Research Unit is still in good condi-

tion, the service space and reclaimed basement areas are poorly suited to its users' needs.

The second group of buildings, Mulford Hall, the Biochemistry Building, and the Insectary, contains three very special cases, and all are rated fair. Mulford Hall's main problem is the deficient third floor space for Genetics, which is grossly inadequate for the sophisticated laboratory needs of that department. The Biochemistry Building's rating, close to those of Mulford Hall and the Insectary, is below average because of the serious ventilation and structural problems of the building. In other respects, Biochemistry is a good building, very well suited to the program it houses, and were it not for those two major deficiencies it would be rated good. The Insectary is low-grade space suitable for only offices and the simplest lab service functions. In addition, the Insectary's location on the Oxford Tract fragments the Entomological Sciences Department's program, being separated from the Department's space on the campus proper.

The remaining buildings, Morgan, Tolman, Haviland and Warren Halls and the Natural Resources Laboratory have the highest ratings in the precinct. Though each has individual problems, all are basically sound and these problems can be solved by relatively minor alterations.

Overall, the Agriculture and Life Sciences precinct is rated 3.0, or fair. The five newer buildings at the northwest corner average 3.3, a third of the way from fair to good, while the four major life science buildings near the eastern end of the precinct average 2.4, approaching poor. These four - LSB and the neoclassical trio of Wellman, Hilgard and Giannini Halls - are most in need of interior modernization for contemporary biology. The problems of Genetics would best be solved by relocation of that unit entirely out of Mulford Hall.

Many of the buildings in this precinct are high on the list of candidates for seismic

T a b l e    1  
A g r i c u l t u r e   &   L i f e   S c i e n c e s   P r e c i n c t  
COMPARISON OF ACTUAL INSTRUCTION AND RESEARCH SPACE WITH RESTUDY ALLOWANCES

| <u>Discipline</u>         | <u>-1-<br/>Allowed<br/>Std.ASF<br/>Under (e)<br/>Restudy</u> | <u>-2-<br/>Actual<br/>Std.ASF<br/>Within (f)<br/>Precinct</u> | <u>-3-<br/>Actual<br/>Std.ASF<br/>Outside<br/>Precinct</u> | <u>-4-<br/>Actual<br/>Non-<br/>standard<br/>ASF</u> | <u>-5-<br/>Actual Std.ASF<br/>as Percent of<br/>Restudy Std.ASF<br/>([2 + 3] ÷ 1) x 100</u> | <u>-6-<br/>Excess or Deficiency<br/>of Actual ASF<br/>vs. Restudy ASF<br/>(2 + 3 - 1)</u> |
|---------------------------|--------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Biological Sciences (a)   | 149,631                                                      | 199,964                                                       | 5,487                                                      | 2,437                                               | 136 %                                                                                       | +55,820                                                                                   |
| Agricultural Sciences (b) | 161,490                                                      | 135,303                                                       | 6,891                                                      | 76,404                                              | 88 %                                                                                        | -19,296                                                                                   |
| Ag Social Science (c)     | 7,160                                                        | 9,846                                                         | -0-                                                        | -0-                                                 | 138 %                                                                                       | +2,686                                                                                    |
| Ag Bioscience (d)         | 31,575                                                       | 30,513                                                        | 400                                                        | 145                                                 | 98 %                                                                                        | -662                                                                                      |
| Psychology                | 42,648                                                       | 57,553                                                        | 1,850                                                      | -0-                                                 | 139 %                                                                                       | +16,755                                                                                   |
| Education                 | 39,244                                                       | 45,340                                                        | -                                                          | 319                                                 | 116 %                                                                                       | +6,096                                                                                    |
| Social Welfare            | 14,349                                                       | 13,885                                                        | -                                                          | -                                                   | 97 %                                                                                        | -464                                                                                      |
| Public Health             | -                                                            | -                                                             | -                                                          | 60,410                                              | -                                                                                           | -                                                                                         |
| Precinct Total            | 446,097                                                      | 492,404                                                       | 14,628                                                     | 139,715                                             | 113%                                                                                        | +60,935                                                                                   |

- 
- (a) Includes Departments of Biochemistry, Biology, Botany, Microbiology & Immunology, Physiology-Anatomy and Zoology.  
(b) Includes all Departments in College of Natural Resources except Agricultural and Resource Economics and Nutritional Sciences.  
(c) Department of Agricultural and Resource Economics.  
(d) Department of Nutritional Sciences.  
(e) Restudy standards date from 1955 and were revised in 1966. ASF (assignable square feet) is calculated using 1980-81 year average workload data.  
(f) Actual ASF is from Fall 1980 Facilities Data System (FDX).

Table 2  
Agriculture & Life Sciences Precinct  
SUMMARY OF BUILDINGS RATINGS

| <u>Building</u>              | <u>Age</u> <sup>1</sup> | <u>Program Suitability</u> <sup>2</sup> | <u>Fire and Life Safety</u> <sup>2</sup> | <u>Structural Safety</u> <sup>2,3</sup> | <u>Utilities</u> <sup>2</sup> | <u>Accessibility</u> <sup>2</sup> | <u>Maintenance</u> <sup>2</sup> | <u>Building Average</u> |
|------------------------------|-------------------------|-----------------------------------------|------------------------------------------|-----------------------------------------|-------------------------------|-----------------------------------|---------------------------------|-------------------------|
| Life Sciences Building       | 2                       | 2                                       | 2                                        | 3 [321]                                 | 2                             | 2                                 | 2                               | 2.1                     |
| Giannini <sup>4</sup>        | 2                       | 3                                       | 2                                        | 3 [300]                                 | 3                             | 3                                 | 2                               | 2.6                     |
| Wellman <sup>4</sup>         | 1                       | 3                                       | 3                                        | 2;3 [644]                               | 3                             | 2                                 | 3                               | 2.6                     |
| Hilgard <sup>4</sup>         | 1                       | 2                                       | 3                                        | 3 [492]                                 | 1                             | 3                                 | 3                               | 2.3                     |
| Morgan                       | 4                       | 4                                       | 2                                        | 4 [413]                                 | 4                             | 3                                 | 3                               | 3.4                     |
| Mulford                      | 3                       | 3                                       | 3                                        | 4 [391]                                 | 2                             | 2                                 | 3                               | 2.9                     |
| Warren                       | 4                       | 4                                       | 3                                        | 4 [417]                                 | 2                             | 4                                 | 4                               | 3.6                     |
| Biochemistry                 | 4                       | 4                                       | 3                                        | 2 [227]                                 | 2                             | 3                                 | 3                               | 3.0                     |
| Tolman                       | 4                       | 4                                       | 3                                        | 4 [404]                                 | 3                             | 3                                 | 3                               | 3.4                     |
| Haviland                     | 2                       | 4                                       | 3                                        | 4 [221]                                 | 3                             | 4                                 | 4                               | 3.4                     |
| T-19                         | 3                       | 2                                       | 3                                        | 3                                       | 2                             | 3                                 | 1                               | 2.4                     |
| Oxford Tract Insectory       | 4                       | 2                                       | 2;3                                      | 4 [1338]                                | 3                             | 4                                 | 2                               | 3.1                     |
| Oxford Research Unit         | 4                       | 3                                       | 1                                        | 3 [918]                                 | 2                             | 2                                 | 3                               | 2.6                     |
| Natural Resources Laboratory | 5                       | 5                                       | 4                                        | 4                                       | 3                             | 4                                 | 4                               | 4.1                     |
| Precinct Average             | 3.1                     | 3.2                                     | 2.7                                      | 3.4                                     | 2.5                           | 3.0                               | 2.9                             | 3.0                     |

<sup>1</sup>Key: 1 = completed before 1921  
2 = completed 1921-1935  
3 = completed 1936-1950  
4 = completed 1951-1965  
5 = completed 1966 to present

<sup>2</sup>Key: 1 = very poor  
2 = poor  
3 = fair  
4 = good  
5 = very good

<sup>3</sup>Key: The bracketed number in the column to the right is the building's ranking from the Seismic Hazard Survey, State of California Buildings.

<sup>4</sup>Key: Building has been nominated as California State Landmark and for National Register of Historic Places.

hazard correction work identified in a recent State survey, with four of them ranked fairly high on the list (Haviland Hall, the Biochemistry Building, Giannini Hall and the Life Sciences Building), followed closely by McLaughlin and Mulford Halls.

A detailed description and evaluation of the twelve buildings in Precinct 4 is to be found in the report Phase I of Berkeley Campus Space Plan, Precinct 5 of Campus Space Resources Survey, Agriculture and Life Sciences, July 1981.

### Proposals

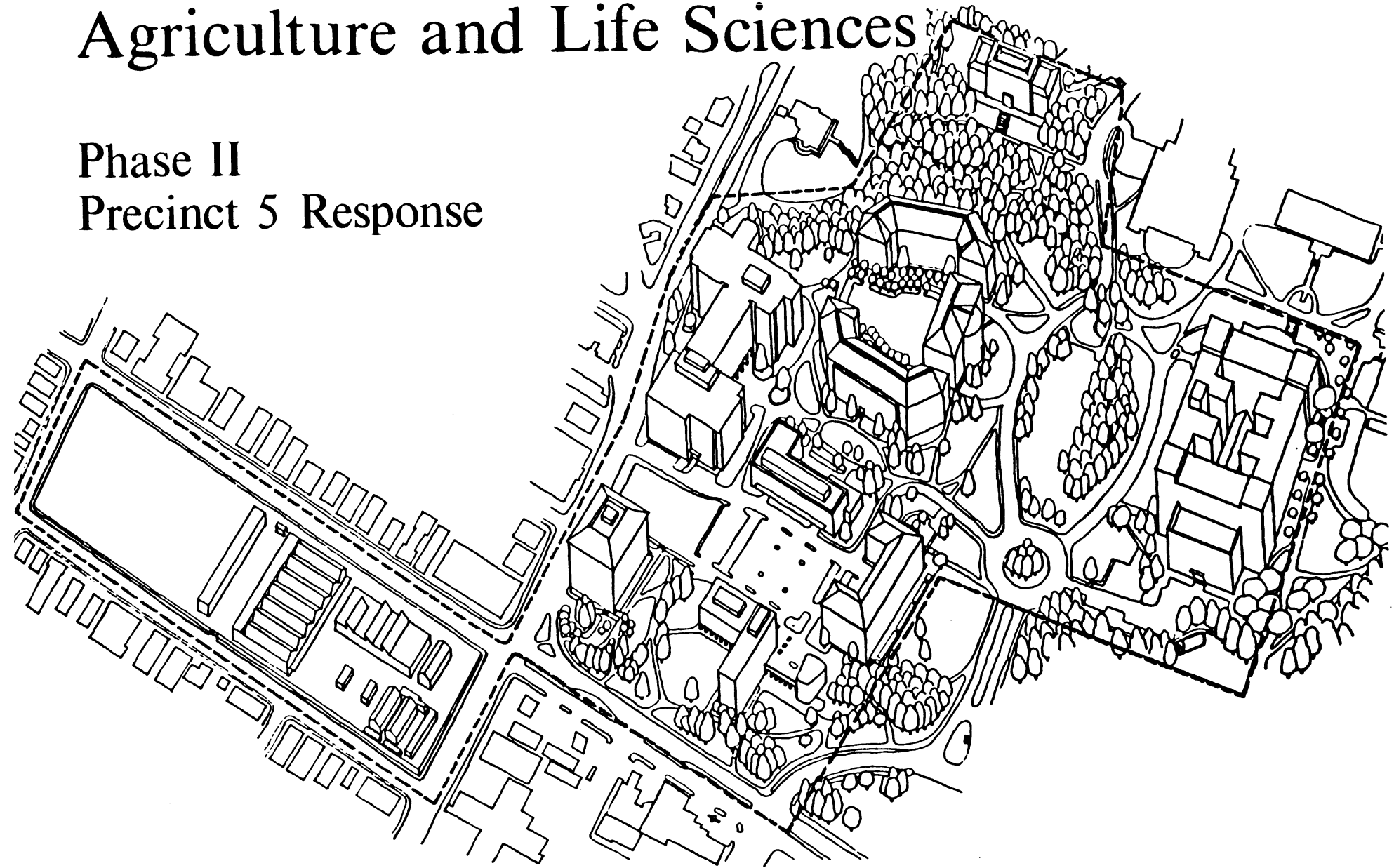
The chief need of this precinct is the upgrading of space for the life sciences, focusing on the modern laboratory needs of the resident units for teaching and research. Both more and better space is required. A major capital improvement project, Biological Sciences Construction and Alterations, is being proposed to construct new space to help correct these deficiencies and to provide needed upgrading of LSB. Hilgard and Wellman Halls are also in need of major renovations. Improvements in utility services and accessibility are required for the three buildings as well as for Mulford Hall, but the latter building's programmatic deficiencies would be better solved by relocating the Department of Genetics rather than attempting to upgrade the third floor space. A fourth floor on Mulford Hall has been considered as a way of providing some additional space in this precinct. Besides some minor alterations, Morgan Hall requires fire and life safety improvements and the addition of an elevator to the fourth floor penthouse level. Tolman Hall's animal quarters need improvement in the quality of space, and improved ventilation is being provided through a State-funded minor capital improvement. The ventilation system of the Biochemistry Building is being improved under a State-funded major capital improvement program which should correct a major deficiency of that building. Giannini Hall requires fire and life safety work as well as major work to correct

leaks and other maintenance problems. Building T-19 should be removed and its creek-side site restored to a natural condition.

# Agriculture and Life Sciences

Phase II

Precinct 5 Response



## PHASE II - PRECINCT 5 RESPONSE

### SPACE ANALYSIS

#### Background

The science of biology has undergone a revolution in the past twenty years which has transformed the ways in which living things are understood. It represents perhaps the most impressive example of human creativity since the revolutionary discoveries in the physical sciences in the early 1900s.

In the broadest terms, this revolution is a consequence of unraveling those principles which apply to all life. Through molecular studies, the underlying similarities in the chemistry of all living organisms have been demonstrated, broadening and transforming the sciences of biochemistry into an essential discipline for understanding the functions of all organisms. A second element has been the emergence of molecular genetics, the understanding of the genetic code, and the utilization of genetic engineering to open frontiers in research and industry. Thirdly, cell biology has emerged as a major discipline revealing insights into the similarities and differences of the substructures of all cells. Finally, the development of computers and new mathematical routines opens the door to applications of the molecular findings to understanding of population dynamics and ecological problems.

In these ways, the study of living things has matured into a quantitative science with a substructure of overlapping component disciplines which no longer have the precise disciplinary lines familiar in the past. Ecologists are using molecular techniques to solve their problems. Biochemists are studying whole animals to correlate structure and function. Physiologists must understand anatomy, and anatomists, physiology. The net result of this new ferment is a need for high technology equipment across the entire spectrum of the biological sciences and a need for placing scien-

tists with mutual interests and equipment needs together for maximum effectiveness.

This revolutionary progress in biology has created opportunities for applied research and development in many fields. In addition to the many advances in medicine that derive from modern biology, the industrial potential for biotechnology is now being realized. New companies have been formed to take advantage of recent discoveries, and large industrial firms in the pharmaceutical, chemical, agricultural, and energy areas are beginning to invest heavily in applications of biological technology. The economic and social importance of these developments to the State of California, the nation, and, certainly, the entire world hardly needs to be stated. The Berkeley campus should play a key role in this, since the Bay Area is the "cradle of recombinant DNA" where the initial discoveries in this field were made.

These developments in biological understanding have profound implications for teaching and research. The Berkeley faculty have evolved curricula in biology that provide students with broad programs in the fundamental disciplines of biology. The potential for the application of biological technology in industry is expected to add to the intellectual excitement and lead to another influx of students seeking training for careers in that area. The University has an obligation to provide appropriate education and opportunities for training and research in the basic areas relevant to biotechnology applications. The public will expect the University to continue to lead in the development of biological concepts and to offer the teaching and training programs that will be needed for their application. To carry out this mission, the University must recruit and retain able faculty, select and attract outstanding students, and offer well-designed teaching programs. The success of this endeavor hinges on Berkeley's ability to house its academic programs in facilities that will allow the use of, and training in, modern sophisticated techniques. Both teaching and research programs must reflect the

evolving conceptual structure of biology and must be flexible and responsive to the changing needs for highly trained professional personnel. The degree to which this can be achieved is highly dependent on the quality of both the faculty and the facilities of the University.

#### General Evaluation

The biological sciences community at Berkeley includes many superb scientists. Despite this, there has been a notable decline in national standing over the past thirty years. This decline stems primarily from a failure to provide the facilities for the biological sciences while competitors were building new buildings to lure the leading scientists to other institutions. Many of the principal buildings housing the biological sciences at Berkeley - the Life Sciences Building (LSB), Wellman Hall, Giannini Hall, and Hilgard Hall - were constructed half a century ago. The chief means of upgrading these buildings in recent years has been the minor capital improvement program, a "band-aid" approach, which has done little to mask the accelerating obsolescence and deterioration of these hundreds of thousands of assignable square feet.

These facilities are inappropriate for modern biology in terms of the layout of space, the amount of space, and the services built into the buildings. When the buildings were constructed the designs were consistent with the diversity of biology at that time, but these designs bear no relation to the perceived universalities of modern biology. Subsequent reassignments and relocations have only further dislocated the building's occupants to the point where physical location frequently has no connection with either departmental or subdisciplinary affiliation. This fragmentation inhibits the free flow in information, the development of collaborative teaching and research efforts, the realization of economies of scale in support systems, and the exploration of the interfaces where many of the new discoveries have been made. Furthermore, available utilities,

laboratory benches, fume hoods, other fixed equipment and specialized service rooms are inadequate or, in many instances, nonexistent. Animal facilities cannot meet accreditation standards. In terms of amount, the space was planned when equipment needs were vastly more modest than they are today, creating a situation where instrumentation and technical support staff have crowded faculty and students into a fraction of the required work space. Equipment frequently lines the walls of public corridors, creating health and safety hazards, inefficiencies, and security problems.

Besides these deficiencies which relate directly to the academic program, the buildings have major problems which are affecting the health, safety and morale of their occupants. These include structural inadequacies, fire and life safety hazards, many code violations and ventilation and utility deficiencies. Accessibility is seriously deficient and the deteriorated electrical, mechanical, and plumbing systems threaten the quality of scientific work and vastly increase costs of even minor renovations.

Because of inadequate space and crowding on campus, quite a few biologists are located in off-campus facilities. Many of these faculty are in the College of Natural Resources, and much of the space they occupy is similarly not designed for modern biological work. They need to be brought on campus to interact with their colleagues in appropriate space.

## COMMON PROBLEMS IN THE BIOLOGICAL SCIENCES

### Survey of Primary Units

A survey and critical review of the space needs of the biological units (primary units) lead to the following conclusions: it is difficult to exaggerate the gravity of the space problem confronting most units; the existing space standards are seriously flawed and are totally unrealistic (see p. 88 of Project Planning Guide for the Biologi-

cal Sciences Construction and Alterations project); the quality of space is not suitable to carry on modern biological teaching and research; and the absence of space is by far the number one problem confronting the functioning of biology units.

The absence of space has become so severe that it impedes recruiting of top faculty, interferes with the obtaining of grants, affects certification of certain programs because of substandard facilities (animal-related programs), and has a major deleterious affect on the direction of programs.

Some departments do not have laboratories or offices for present faculty. Moreover, some units must develop their teaching and research programs based on the amount and type of space available rather than designing them on the basis of programmatic need and academic reasoning. High-technological areas such as those relating to recombinant DNA require considerable space. Accordingly, departments such as Entomological Sciences and Plant Pathology cannot now recruit in these areas because no laboratories are available. The seriousness of the space problem can best be illustrated by the fact that several units have utilized restroom areas for storage space for equipment and for other program needs. (In one extreme case, access to a TA office is through a women's rest room!)

Teaching space outfitted with modern equipment is limited. There is a great need for some large teaching laboratories to accommodate the number of students desiring laboratory experience. In addition, a number of lecture rooms do not have facilities for projecting visual material; faculty are seen carrying portable screens to their classes. Many instructors are currently attempting to teach in inadequate classrooms with a lack of facilities.

A survey of the secondary units located in precinct 5 was made to determine whether or not it would be possible to trade space, use some facilities jointly, or identify space that could be used more effectively.

The conclusion was that these units had space problems of their own, especially where their programs have expanded into biology-related areas. Thus, units such as Psychology, the Institute of Human Development and Social Welfare need laboratories to teach and conduct research in biology. The problem is sufficiently acute that some units had hoped to borrow laboratories from nearby biology departments.

Table I summarizes the common problems in precinct 5.

Detailed information on the space needs of the units in this precinct can be found in the individual unit responses included in the full report of the Phase II, precinct 5 task force.

## RECOMMENDATIONS

It is impossible to assess the impact that the grossly substandard physical facilities have had on teaching and research programs and on the professional development of the faculty. The effects may have been a little short of tragic. A full scale attack must be undertaken on this problem. The future of biology at UC Berkeley depends on the provision of proper laboratory facilities for those faculty members, students and associates housed in the Life Sciences Building and in the College of Natural Resources. We cannot emphasize too strongly the need for improvement in teaching and research facilities. The situation has been critical for years; to continue it invites disaster, both physically and in terms of the health of the biological sciences as academic disciplines on the campus.

At approximately the same time that the internal Biology Review Committee started its programmatic review, an outside consulting firm, Kaplan/McLaughlin/Diaz, Architects/Planners, was hired. The firm was asked to evaluate thoroughly (a) the Life Sciences Building's structure, utility systems, and code deficiencies, (b) the current operational problems of the departments housed therein, and (c) LSB's

other major blocks of released space will be on the third floor of Mulford Hall (10,460 ASF, released by Genetics), in the basement of Giannini Hall now occupied by the Natural Resources Library (7,525 ASF), in Hilgard Hall (11,557 ASF), and on the Oxford Tract (5,700 ASF). Additional smaller amounts of space will be released in Wellman and Giannini Halls (1,796 ASF and 222 ASF, respectively). This totals 63,819 ASF to be freed as a consequence of new construction and renovation of LSB.

The College of Natural Resources presently has eight faculty housed on the Gill Tract, a facility located in the City of Albany at some distance from the campus. In addition, there are a number of faculty occupying crowded and low quality research space on the Oxford Tract, which is just beyond the northwestern edge of the campus. Some of the released space will be reassigned to bring CNR faculty, particularly those in Entomological Sciences, onto the campus and into more appropriate space, as well as to provide additional space to CNR students and faculty now crowded on the campus.

The specific units to be relocated into the major blocks of space in ESB, Mulford Hall, Hilgard Hall and Giannini Hall have not been specified at this time. The serious problem of seismically hazardous buildings will necessitate the use of at least some of this space to relocated activities from the most dangerous buildings until they can be seismically reinforced. In the recently released, ranked list of California's public buildings most in need of seismic improvement, twelve Berkeley campus buildings are among the top fifty. The funding and timing of this seismic work are presently uncertain. As a consequence, a specific relocation plan cannot be outlined at this time.

In addition, the Berkeley Campus Space Plan has identified several buildings in various precincts which will require major programmatic rehabilitation. The use of surge space in large amounts will also be essential for the accomplishment of this

work. In the longer term, the campus presently has nearly 52,000 ASF of space in six dilapidated temporary structures in the center of the campus which must be vacated for health and safety as well as programmatic reasons. The availability of 50,000 ASF, a consequence of the proposed major capital improvement, will provide a key to accomplishing the goals of the Campus Space Plan in the decades to come.

**Support Activities**



## SUPPORT ACTIVITIES

The survey and needs analysis conducted under Phases I and II for the academic precincts and described in the chapter on "Academic Space Resources and Needs Survey" started, respectively, with the survey of individual buildings and with the needs of individual instructional and research units, and proceeded with the coalescence of findings into collective needs of geographic precincts and of academic disciplines. A number of buildings on the central campus lie outside the geographic boundaries of the academic precincts, serve a variety of functions, and were not covered in the Phase I and II work of academic precincts. For a comprehensive campus space plan, they need to be taken into consideration. Also, in the course of the Phase I and II effort in academic precincts, it became apparent that certain activities directly supportive of the instructional function of the campus, or indirectly so, consume space and have a substantial influence on the amount, distribution and quality of needed space for the University's primary functions. Their presence and influence cut across precincts and disciplines, and the study of space needs for such activities would therefore benefit from a campus-wide approach. The current Campus Space Plan effort has identified thirteen such campus-wide support activities, four of which have been deferred for later study because of the pressures of time and budget constraints. They include the study of Faculty and Student Housing, of Campus Basic Utilities, of Food Service, and of Periphery and Satellite Facilities. Work on nine task forces has started in the academic year 1980-81, and will continue in the academic year 1981-82.

Five of the nine support activities on which work is in progress can be described as academic support activities. Task forces formed by BCDC for each of them, and reporting to Vice Chancellor George Maslach, are the task forces on Libraries, on Animal Care Facilities, on Museums, Exhibits and Special Collections, on Class-

room and General Facilities, and on Space for Computing. Task forces for the other four support activities have been organized by Coordinator - Physical Planning Dorothy Walker and report to Vice Chancellor Robert Kerley. They include the task forces on Student Activities and Services, on Landscape, Open Space, Parking and Circulation, on Administration and Public Service, and on Athletics and Recreational Facilities. Progress reports on the work in progress have been filed by the chairs of all nine task forces, and the content of these progress reports is included in this chapter.

Even though the reports are "in progress" and therefore tentative, certain conclusions have been reached, and tentative recommendations have been formulated in them. They include the need for additional building space, major upgrading of space to conform to applicable codes and regulations, proposals for shifts in space assignment to effect the regrouping of related activities in contiguous locations, the inauguration of campus-wide programs of space renovations and administrative measures to improve the delivery of services. These recommendations have been taken into consideration in the selection of projects for inclusion in the 1981 Berkeley Campus Space Plan.

Extracts from the reports of the support activities task forces follow.

## ACADEMIC SUPPORT ACTIVITIES

### TASK FORCE ON LIBRARIES

Academic library services are in the process of undergoing major, virtually revolutionary, change. Much of this change is based on computer-related and reprographic technology, but in addition, the role of libraries has been changing from that of a storehouse of printed materials to that of an interactive connecting link between researchers and information. The researchers' needs, in the context of university instructional and research programs, form the basis for determining the

shape of library acquisitions; the collections are much more heterogeneous than in the past, and include more maps, microforms, sound recordings, pictorial materials, and other audio-visual items than ever before; and library staff members are taking an ever more active role in guiding campus researchers to information, whether it is contained in the particular library's collections or obtainable from other interconnected sources of data.

These components of change have definite and immediate bearing on the degree of adequacy afforded by facilities in which library collections and operations are housed. In short, library facilities at Berkeley are grossly inadequate for present and future modes of information service. The greatest number of buildings housing library units were constructed between twenty and fifty years ago, but the single largest collection and locus of the General Library's central reference, circulation and technical services, Doe, is a sixty-year old, monumental, handsome Beaux-Arts structure ill-suited in many important ways to serve the information needs of our campus effectively.

It seems clear that the Berkeley campus' physical facilities program will be oriented toward renovation of existing facilities rather than new construction. This program necessarily will be a phased, long-term development; over the course of time it will undoubtedly involve a number of library facilities. The statements that follow are intended to serve as general guidelines for the physical facilities work that involves libraries at Berkeley.

1. Designation, planning and renovation of space to house library collections and services should be specifically oriented to library functions. Libraries should not be regarded as recipients of tag-end, leftover space after space for other functions has been assigned.
2. Library collections and user services should be located so as to be conveniently and easily accessible to user clientele. In

general this means location on or close to major campus traffic patterns. Any modification of physical facilities for libraries should include consideration for access by disabled persons.

3. Because the ways in which information is provided to the academic community are changing and will continue to change, library space should be designed to allow for and accommodate change. For example, all library floors should be designed for book collection loading capacity, since working space and housing of collections may undergo locational change over time.

4. Renovation or modification of space for library service must be accompanied by the provision of capability for contemporary information technology. Specifically, this means generous allowance for electrical power and telecommunication lines to allow for installation of computer-related equipment, microform and reprographic devices, and audio-visual display facilities.

5. Because of the increasingly active, or interactive, modes by which libraries and library staff members provide information to academic users, space for library facilities needs to include areas in which person-to-person and group communication can occur, reference areas that allow for informal user-librarian dialogue and inquiry, and conference and meeting rooms of varying sizes that facilitate bibliographic instruction and training.

6. Environmental controls, providing for temperature and humidity at standards recommended for optimum preservation of library materials, should be a mandatory accompaniment of any renovation of library space.

7. All library facilities should be equipped with security controls adequate for both collections and the people who use those collections and who work in the facilities. Rare, unique, and particularly valuable library materials in the Bancroft, Music, Biology, Law and East Asiatic Libraries require special safeguards that enhance protection against theft, mutilation, and deterioration induced by environmental factors.

8. Existing library facilities, particularly in the Main (Doe) Library and Annex, are highly unsatisfactory for the receipt of library materials and for their transportation and dispersal to the various units of the General Library. Transportation of library materials adds to and compounds unsatisfactory aspects of campus vehicular traffic; facilities in the Main Library and elsewhere are inadequate for effective materials handling; elevators and many unit receiving locations need redesign and modification for more effective transmission of materials.

The General Library sees both centrifugal and centripetal forces operating to determine the future array of Berkeley library collections and services. Technological advances, some already well developed, will serve to make bibliographic data and, eventually, substantive textual and statistical data available throughout the campus, through computer terminals and microform display devices. In parallel fashion, librarians will move to offer more extensive opportunity for consultation (e.g., with faculty on collection policy and choices), for training in bibliographic and database searching techniques, and for bibliographic research counseling for students and researchers at advanced levels. In order to provide these services, however, it will be necessary to consolidate existing library collections in fewer locations than is now the case. Consolidation will enable the General Library to reduce duplication of titles acquired, to achieve economies in staffing (particularly in the work of organizing materials for use), and to provide for the availability of trained bibliographic assistance at more extended periods than is now possible.

#### Progress Report

The Library Task Force, formed in February 1981, collected and compiled data characterizing library facilities on the Berkeley campus. These data cover, in varying degrees of detail, three separate categories of library units:

1. Components of the General Library: Doe Library and its Annex; Moffitt Undergraduate Library, and twenty-three branch libraries.

2. Eleven so-called "non-General libraries": libraries of substantial size and function, funded and administered by a School, College or Organized Research Unit.

3. Fifty-six "departmental" libraries, most of which are relatively small collections maintained for the ready-reference use of an academic department.

In addition, subcommittees of the Task Force, generally with the addition of one or two faculty members from appropriate disciplines, conducted on-site surveys of all libraries in groups 1 and 2 above. Members of the Task Force, together with several members of the General Library staff having expertise and special responsibility in areas relating to library facilities, prepared a series of statements on problem areas applicable to many or all library units.

Three major projects now in various stages of planning are related to and, in part, stem from space survey work. The first and most important of these is the plan for seismic protection of the Main Library, involving a mostly underground extension of space contiguous to the Library Annex. This plan is the result of intensive analysis and interaction between Library staff members and personnel from the architectural and planning firm of Kaplan/McLaughlin/Diaz; a Project Planning Guide is targeted for preparation within the next few months.

The second project is associated with the academic, research, and facilities studies relating to the life sciences on the Berkeley campus. Working in conjunction with faculty, Kaplan/McLaughlin/Diaz, and campus administrators, consolidation of existing library units in the biological and natural resources fields is proposed, to be housed in renovated space in the present Life Sciences Building. The third major project parallels the second in looking

toward consolidation of library facilities in the physical sciences, although plans for consolidation are less well formulated than in the life sciences area.

A fourth -- and critical -- need is that of seismic protection for the Moffitt Undergraduate Library, the most intensively and extensively (in terms of hours of opening) used library facility on the Berkeley campus. Although relatively detailed information is on hand analyzing the structural weaknesses of Moffitt, no planning or proposals are ready for submission. This major gap in facilities planning will be corrected by the current proposal for minimal work to bring up the structure to acceptable levels of safety.

Finally, planning for the most poorly housed library collection and service point on the Berkeley campus, the East Asiatic Library, is still at a very preliminary stage. Collections, work areas, and space for users are split between the basement and upper floors of Durant Hall, with substantial portions of this major resource housed in an upper tier of the Biology Library stacks (Life Sciences Building) and at the remote storage site of the Intercampus Library Facility (North). Although minimum requirements for an integrated facility have been prepared and submitted to the campus administration, realization of adequate space for East Asiatic collections and services seems to be dependent on obtaining sufficient capital improvement funds from non-State sources. Site determination and further architectural planning will in all likelihood await the time when achievement of funding objectives is within reach.

#### TASK FORCE ON ANIMAL CARE FACILITIES

##### Current and Immediate Space Needs

The first comments of the task force address existing and currently needed space requirements. All departments and units who use animals at this time were interviewed and replies were received from

all of them. This data has been compared with the Campus Veterinarian's most recent survey (1980-81) of animal space. There are 82,738 ASF of animal space now in use. The departments and units estimate that an additional 28,548 ASF are needed for immediate use.

Projected Space Needs (5-10 years). Not more than 10% of the 28,548 ASF required now is projected as additional space needs over a 5-10 year period.

The task force emphasizes that the campus animal space requirements of approximately 100,000 ASF have not changed since 1968 when a large, modern animal facility was planned between Morgan and Warren Halls. Furthermore, given the remarkable constancy of these figures over the past 13 years, no significant change is foreseen for the future.

Although the total animal space needs have not changed, the spectrum of animal species housed and proposed to be housed has changed. An example of this is the increased use of invertebrate and non-mammalian vertebrates.

##### Quality of Space

The charge to the committee requested that it look at the quality of the facilities (which is understood to mean the physical qualities), and their suitability (which is understood to mean suitability to departmental needs). These two questions are addressed below.

1. Quality of Facilities. Although this committee has been asked to pass judgement on the physical facilities, the committee points out that numerous authoritative bodies have declared the physical facilities inadequate. The Animal Welfare Act of 1966 specifies the physical quality of animal quarters. The measure of quality is determined by the American Association for Accreditation of Laboratory Animal Care (AAALAC). Their judgement is acceptable to the legal authorities and the granting agencies.

The committee also calls attention to the numerous reports concerning the quality of the Berkeley animal facilities. In particular, the 1972 report of AAALAC, the numerous United States Department of Agriculture reports, various private consultant reports, and the recent letter from the Animal Subjects Committee dated May 1981, all of which describe the inadequacies of the physical facilities, thus making them unsuitable for accreditation.

The decision to request AAALAC to conduct a survey of the Berkeley campus will provide appropriate recommendations required to permit accreditation.

2. Suitability. Suitability is in the eye of the beholder. However, a measure of suitability can be gained from reading the letters of the individual chairmen. The majority complain bitterly about their facilities. While suitability may be important on a day-to-day operational basis, in the long run it is the physical quality which must meet the legal standards that is really important.

The committee is convinced of the necessity for compliance with the Animal Welfare Act, but is concerned that the State authorities may not realize the current inability of the Berkeley campus to comply with the law. To this end, the AAALAC report should be made available to the appropriate authorities and should be a mandatory part of the architect's study.

##### Current Distribution of Animal Space and Facilities

The users of Animal Space are clustered in about five locations.

##### 1. Life Sciences Building area.

|                    |        |
|--------------------|--------|
| Current space      | 22,072 |
| Immediately needed | 12,601 |
| Projected needs    | 0      |

2. Oxford-Hearst campus area. Includes Warren, Mulford, Tolman, and Morgan Halls, Biochemistry and the Agriculture group.

|                    |        |
|--------------------|--------|
| Current space      | 18,502 |
| Immediately needed | 14,222 |
| Projected needs    | 0      |

3. Behavioral Sciences Field Station, Grizzly Peak Boulevard units.

|                    |        |
|--------------------|--------|
| Current space      | 23,620 |
| Immediately needed | 6,000  |
| Projected needs    | 3,200  |

4. Upper Campus area. Includes Optometry, Environmental Physiology and Molecular Biology.

|                    |       |
|--------------------|-------|
| Current space      | 4,503 |
| Immediately needed | 1,125 |
| Projected needs    | 0     |

5. Division of Animal Resources.

|                    |        |
|--------------------|--------|
| Current space      | 13,031 |
| Immediately needed | 0      |
| Projected needs    | 0      |

Recommendations

All the facilities for the above five groups should meet AAALAC standards, whether this means reconstruction, new construction or some combination thereof.

On the basis of the limited evidence available; priorities for replacing current facilities should correspond to the order in which those facilities are listed above. The above list represents the current distribution of animal users and not a recommendation with regard to possible animal facilities sites.

TASK FORCE ON MUSEUMS, EXHIBITS AND SPECIAL COLLECTIONS

All of the museums, the Botanical Garden and most special exhibits support or enhance instruction directly. Because they do, they must remain "alive" and vital. To do so, all must have room for growth of the collections and all must have room and laboratory facilities appropriate to their goals in support of instruction. To remain current and vital, it is essential for the museums to have space for their collec-

tions and space in which the materials in the collections may be studied, just as libraries require ever-increasing space for their holdings as well as space in which to use them.

The growth of the Herbarium's collection and the Jepson Herbarium's collection has been severely restricted owing to shortage of storage and processing space, and this has limited the University's participation in a number of research ventures. This limit on growth also reduces the Herbarium's vitality, as well as that of its staff. Furthermore, space shortages contribute to specimen damage through unavoidable physical effects in the course of taking materials out and replacing them in overcrowded cases. Poor circulation around collection cases makes fumigation difficult, but this is a direct result of the lack of space. There is insufficient protection from contamination by insects introduced by nearby animal facilities. The present space for processing incoming material is also inadequate. The fire and life safety is rated as poor.

The following developments are needed to permit full realization of the Botanical Garden's programmatic goals: the Atmospheric Aerosols Laboratory should be converted to Botanical Garden use; the Acid House should be removed and the area used for parking; the existing parking lot on the west side of Centennial Drive should be used for the site of a new 8,000 square foot structure which would include 1,500 ASF of office space as well as classrooms and a laboratory; existing office structures should be demolished as should the present Information Center and staff building; the present meeting room should be converted to a greenhouse; new greenhouse facilities are needed to control tropical and alpine climates as well as for other environmental controls; and outdoor growing facilities should be developed that include raised beds with different types of soils. Details of these and certain other required developments in the Garden are described in the Master Plan for the Botanical Garden.

The Lowie Museum has 19,035 ASF of developed storage space and 3,675 ASF undeveloped storage space in Kroeber Hall. At the present time, about 4,000 ASF of storage space in Kroeber are needed to house collections already on hand but for which there is no suitable storage. An additional 4,000 ASF will be needed in the next decade in Kroeber, given the current rate of growth in the collections. Most of the collections should be housed in Kroeber because they are used so intensively in instruction. Lowie's commitment to instruction has resulted in recent conversion of 1,200 ASF of exhibit space to classroom teaching. This change hampers the exhibit program and diminishes security of the collections. In the Museum-supported program in historical archeology, 300 trays of artifacts were produced in the first year. The Museum does not have the space to accommodate these collections, thus the instructional program cannot be developed as fully as it should because of lack of space. Environmentally, the facilities in Kroeber are minimally acceptable. There is no climate control, only tempered air that is heavily dust laden. A part of the security control problem has been created by the lack of any controlled research space. A research area or, preferably, a room that is separated from the collections has become an item of the highest priority to safeguard the collections. The fire and life safety are rated as fair.

The Museum of Vertebrate Zoology has no room for growth. Like a library, a collection rapidly loses value when it ceases to grow. There are several special facilities that are essential to the Museum: controlled temperature and humidity rooms; compact storage units; specialized laboratories in biochemistry, genetics, cytology, morphology, and physiology; skeleton preparation rooms, and a simple carpentry shop. The fire and life safety are rated as poor. Specimens in glass jars and large containers are stacked to the ceiling in many areas. Such open shelving does not have restraining bars. Ventilating equipment is old and inadequate. Plumbing leaks and

lack of humidity control cause damage to specimens as does the dirty air that circulates through the air system and leaves dust on work surfaces.

It is estimated that the Museum of Paleontology will need 3,000 to 4,000 ASF of space for new collections in the next ten years. In addition to collection space, about 1,000 ASF of additional preparation and other laboratory space is critically needed. The dissection and skeletal preservation lab is a converted laboratory, is less than half the required size, and needs a stronger fume ventilation system. The floor of the acid preparation lab is sinking and ventilation is extremely poor. The pollen lab lacks pollen-proof seals, an effective hood, and acid and base resistant sinks and benches. Specimens in alcohol are stored together with "type" specimens, posing a fire hazard in the most critical area of the collection. The fire and life safety are rated as very poor.

The Essig Museum of Entomology must remain in close proximity to the Entomology Department and Library because the insect collections are used so directly in instruction and because the library with its entomological publications are tied closely to the collections. The only current need for the insect collection is a wet laboratory with a fume hood to permit appropriate biochemical procedures.

The Lawrence Hall of Science needs new classroom, conference, and office space. This new space is required to enable the Hall to carry forward its science education programs.

#### Recommendations

As a first and highest priority recommendation, the Campus Museums Space Task Force fully supports the renovation of the Life Sciences Building such that the natural history units can be moved into expanded and renovated space in that building. The second recommendation is for the development of warehouse-like space with a minimum of 40,000 ASF of

high-load capacity space for storage of little used materials and pieces of equipment. Such a facility should have greater security and less exposure to dust and wind than the present Richmond facility, and it should have sufficient light and heat to permit students and visitors to examine materials in such a facility. The facility should have relatively easy access for vehicles carrying heavy loads. Laboratory sinks and benches for laying out materials are highly desirable. It should be within five miles of campus. All the museums could control the use of the space collectively. If the site becomes available, the old vocational education building at the Dwight-Derby Site could satisfy the needs of the museums for storage. A third recommendation is support for the project planning for space increases at the Lawrence Hall of Science. A fourth recommendation is for expansion of the Botanical Garden and development of new instructional and growth facilities there. A fifth recommendation is for increased security at the Lowie Museum and for expenditures to facilitate improvement of their research and instructional space. New classrooms and a central research area for visitors are highly recommended. The sixth recommendation is development of display areas in a location more commonly visited by students than those in which materials in the Bancroft and certain other libraries are exhibited. Many materials in the Special Collections, holdings such as those in the University Archives, the East Asian Library, the Department of Plant and Soil Biology, and the College of Environmental Design, could be more appropriately displayed. Display space in the University Art Museum might be developed that would satisfy this need. The Art Museum could put on interactive displays, much as the Lawrence Hall of Science has done with other museum units. A seventh recommendation is to keep the collections used extensively in instruction as close to the appropriate departments as possible. There should not be any move to separate collections and the museums that house them for instruction.

#### TASK FORCE ON CLASSROOM AND GENERAL FACILITIES

Phase I, the inventory and evaluation of classrooms on the Berkeley campus, was completed during the Summer 1981. Phase II, the analysis of the data, a review of existing policies and recommendations as to the immediate and long-term instructional needs of the campus, will be addressed in Fall 1981.

The campus' Phase I survey disclosed several problem areas to be commented on at this time.

Maintenance. The daily cleaning of the general classrooms is inadequate in most buildings. Layers of chalk dust, chalk-saturated erasers, general dirt, dust, and chairs left in unusable random arrangements are not conducive to a pleasant teaching atmosphere. Minor maintenance such as broken or missing chairs, inoperative lights, torn drapes and screens and dead P.A. systems cause inconvenience and delays. Major maintenance in the form of painting, new floor covers, new desks or chairs, better heating and ventilation, etc., have been postponed for too long and the untidy surroundings lead to careless behavior by students.

Chain of Command. The problems cited are partly due to the question - who is in charge of the general classrooms, hallways, restrooms, etc.? Whom does one call to have deficiencies corrected?

In preliminary discussion of our Phase I findings the Task Force has recommended that to take care of the immediate problem, some person (probably in the Chancellor's office) should be responsible for classrooms, restrooms and hallways. This person should be on call all day, should have some funds and personnel available to be able to correct immediately classroom, restroom and equipment deficiencies which interfere with instruction, and should, in general, be charged with the responsibility for seeing that certain minimum standards be met in all classrooms on the Berkeley

campus at all times. These standards, as well as the problems of classroom suitability for the campus' instructional needs, policies governing classroom use, etc., will be outlined in more detail in the task force's Fall 1981 final report.

#### TASK FORCE ON SPACE FOR COMPUTING

This task force was chartered to determine campus-wide needs for space in computing for both academic and administrative purposes. The survey of campus space is now complete, and the Phase I Inventory Report is being drafted. Although there have been some preliminary discussions of recommendations, these discussions have not yet formally crystallized. The remarks below, therefore, should only be taken as tentative.

The task force will divide its recommendations into two main groupings: General Campus Facilities (including all the activities under the Office of Computing Affairs, as well as general use facilities such as those at the Quantitative Anthropology Laboratory and the Survey Research Center), and Departmental Facilities (whose users are essentially limited to a single department). Each of these has in turn been divided into Academic and Administrative facilities.

Whereas specific recommendations will be forthcoming for the General Facilities, the task force has decided to make recommendations for the Departmental Facilities only on a generic basis - that is, the recommendations will address only those kinds of issues that are likely to arise generically across the campus as a whole. It is felt that individual requirements for specific facilities are best addressed through the individual precinct reports.

General Campus Facilities. The primary General Facilities are within the Office of Computing Affairs, specifically those of the Departments of Computer Facilities and Operations and of Computing Services, most of which are located in Evans Hall;

and those of the Information Systems Office scattered in five locations on and off campus.

CFO/CS/OCA (Evans Hall). The recommendations of the task force for remedying the deficiencies of Computing Affairs in Evans Hall are likely to parallel the recommendations of the Precinct 2 task force. Specific requirements are:

- the need for a user terminal and input/output area to replace the present fragmented and overcrowded facilities. The new facility needs to be accessible on a twenty-four hour, seven-day-a-week basis without compromising the security and function of other areas in Evans Hall. The total area should be about 6,000 ASF, and could be an add-on facility to Evans Hall as recommended in the Precinct 2 report;

- the need for storage space adjacent to the Computer Room in the basement that can be fashioned out of space created by relocating the I/O facilities as above, improved loading-dock and elevator facilities are also required;

- the need for additional staff space to relieve the present severe over-crowding, again fashioned out of space released by relocating the second-floor terminal facilities as above;

- the need for an overhaul of the present campus telecommunications system to support the high-band with needs of the future;

- the need for additional air-conditioning and electrical power to provide adequate margin for backup, and for emergency purposes.

- Information Systems Office (ISO) is presently housed in 13,000 overcrowded square feet distributed in five locations around campus, from 2224 Piedmont to the Banway Building. This causes unnecessary expense and severe operational and management problems. Furthermore, much of the space is temporary (such as

the Minor Trailers). There is an urgent need to combine ISO into a single location on or immediately adjacent to the campus.

Departmental Facilities. Departmental facilities can be grouped into five main headings: Workstation Clusters; Single User Workstations in offices; Computer Facilities; Laboratory Facilities; and other Special Facilities. Campus facilities in these classifications run the gamut of possibilities and defy convenient description. In general, however, many of the facilities are over-crowded and are frequently sub-standard with respect to one or more of safety, power, climate-control, lighting, security, noise, telecommunications and/or human factors. Furthermore, departments in general anticipate a need for more space devoted to computer functions over the coming years (we note that these needs do not appear to be reflected in most of the individual precinct reports). The task force has identified several issues that will need to be addressed:

- the need to establish and follow campus standards for departmental computer facilities in each of the areas indicated above;

- the need to increase the level of recognition within academic departments of the importance of planning and providing for adequate space for computing facilities. This need assumes increasing importance as the number of decentralized facilities of all types continues to grow;

- the need to plan for more public workstation clusters distributed in several major buildings around the campus (including, perhaps, the Residence Halls) that are conveniently accessible to faculty, staff and students. Such clusters would include terminals, microcomputers, and/or printers, and must be of sufficient critical mass to justify an adequate level of support;

- the need to address the high-band with telecommunication requirements of the coming decade;

- the need for improved teaching facilities containing computer-terminal and video equipment;

- the need to reassess campus office space standards as computer terminals and other workstations appear in a larger and larger percentage of faculty and staff offices on the campus;

- the need to assess the space implications of the rapidly developing demand for office support systems (which includes word processing);

- the need to recognize the growing concerns for improved personal security as increasing numbers of students and others make use of facilities at all hours of the day and night.

These and other issues will be developed and examined in more detail as the task force's work progresses.

## OTHER SUPPORT ACTIVITIES

### TASK FORCE ON STUDENT ACTIVITIES AND SERVICES

With few exceptions, the student services units have significant problems with the buildings and space they currently occupy.

There are four problems which characterize the space occupied by most student services units:

1. The units are in locations scattered across the campus. In most cases, there is little logic in their locations or their proximity to other units with which they have close working relationships.

2. The allocated space is being fully utilized with no room for expansion without creating conditions of severe overcrowding. In a number of units, increased student utilization and staffing have already created overcrowded conditions. This overcrowding has led to working conditions

which adversely affect the morale and productivity of the staff. Lack of storage space is a critical problem.

3. The buildings suffer from a range of physical deficiencies including deteriorating structures, poor ventilation, and substandard maintenance.

4. Most of the buildings were not originally designed to serve the functions they are currently serving. Despite valiant efforts to configure space in ways which increase effectiveness and efficiency, the limitations of the size, structure, and quality of many of these buildings negatively affect the delivery of services to students. A complaint of several units is the lack of privacy for staff members who advise and counsel students.

### Recommendations

To solve these problems, the following steps are recommended:

Sproul Hall should be considered primarily a student services building. In addition to housing the Office of Admissions and Records, the Financial Aid Office, Student Activities and Services, and the Office of the Vice-Chancellor - Student Services, space should also be provided for the Office of Student Research, the Office for Relations with Schools, the Upward Bound Program, and if space permits, the Housing Office.

The Cashier's Office and the Office of Loan Collection and Disbursements should continue to be located in Sproul Hall because of their close relationship to the Office of Admissions and Records and the Financial Aid Office.

Accounting functions such as Payroll, Student Aid Accounts, and Disbursements, which are essential to the units in Sproul Hall should remain in Sproul Hall. All other Accounting and Internal Audit functions should be moved to another location in close proximity to campus.

The Office of Public Affairs and Public Ceremonies should be relocated to free space for units with heavier amounts of student traffic.

In the last several months a substantial amount of rental space proximate to campus has become available. Some of this space might accommodate units presently in Sproul.

If the Housing Office is not relocated to Sproul Hall or another location in close proximity to Sproul, the office should be permitted to use the entire building at 2401 Bowditch. This would necessitate the relocation of the Purchasing Office.

Construction of a new building, funded by State funds, registration fees, a special bond issue, and/or donations from external sources, should be approved. This building, approximately 50,000 ASF in size, should house all student advising and counseling services including the Counseling Center, Student Advising, Career Planning and Placement Center, Physically Disabled Students' Program, and academic support units like the Student Learning Center, the Professional Development Program, and the Center for the Study, Education, and Advancement of Women. The ideal site for this building would be on a portion of the land currently occupied by the T-buildings, with the remainder left as green space.

The Student Health Services should be requested to prepare a PPG, using technical assistance, to develop corrections to the current deficiencies in Cowell Hospital. The proposal should present three options in detail: a new facility, a new addition to the east, and remodeling of the current facility with estimates of costs and of required space for each option.

Teaching Innovation & Evaluation Services (TIES, Stephens Hall), Foreign Students and Scholars (International House), the Educational Television Office (Dwinelle Hall), and the Psychiatric Clinic (Cowell Hospital), with only minor needs for some additional space, seem well suited to their

current locations and space configurations and should not be considered for relocation.

The Field Studies Program should be relocated to Stephens Hall, adjacent to TIES, if and when PDP is relocated to other space.

#### TASK FORCE ON LANDSCAPE, OPEN SPACE, PARKING AND CIRCULATION

The work of the Task Force on Landscape, Open Space, Parking and Circulation is currently in progress with no written report completed at this time. An inventory has been completed of landscape elements for the central campus including parking, circulation, open spaces, distinctive trees and groves, land form, spatial context, and potential building sites. Using a scenario approach, nine issues or factors relative to land use and open space have been identified which have been projected into the future in three forms: existing trends continued, minimum development, and controlled growth and change. From this approach policy recommendations are evolving relating to the nine issues: campus image, parking, circulation, campus entrances, building sites, open space, building settings, campus furnishings, and landscape management.

At the present time, a systematic field survey is being conducted of the central campus divided into 14 subunits. From this work it is possible to determine design and planning issues which are projected into the three scenarios. From both the detailed site investigations and the campus-wide scenarios is emerging a single scenario and a set of definitive policy recommendations. The full task force has met in three working sessions during August to discuss various issues reaching a consensus on the direction being pursued. A set of preliminary recommendations will be reviewed by the task force in late September.

Work to date has focussed primarily on identifying design and planning issues relative to the mission of the task force. While projecting these issues into planning

scenarios, a number of projects aimed at improving the campus landscape have been identified. Many of these are contingent upon new building projects or relate to land use changes and are not easily implementable as discrete projects in themselves. A number of landscape improvement projects which are not contingent upon long-range land use changes nor building programs have also been identified. A complete project list with cost estimates is not available at this time. Projects might include (examples from southeast campus area):

- redesign of College Gate entrance to campus (quad bounded by Kroeber, Law, Wurster)
- redesign of quad west of Wurster and entrance to Wurster Hall
- redesign of Faculty Club entrance and gardens
- design of grounds around Memorial Stadium including entrance plazas with ticket booths, etc.
- redesign of East Gate Entrance to campus.

All of these would be major capital improvement projects and might be tied, at least in part, to a donor gift program.

Specific and definitive projects, as well as an assessment of relative priorities, will be identified in the task force's final report.

#### TASK FORCE ON ADMINISTRATION AND PUBLIC SERVICE

The task force reviewed the following buildings: California Hall, Architects and Engineers Building, 2220 Bancroft, 2223 Fulton, Powerhouse - Art Gallery, 2539 Channing, 2405 Bowditch, 2000 Carleton, 2120 Berkeley Way. All of these buildings house administrative and public service units.

General review of these buildings and the needs of their occupants indicate that the campus must consider relocation of many of these units into a single, generally safer environment with the potential for more

growth flexibility. With this in mind, the task force will look at the future programmatic needs of specific units and determine their candidacy for movement to the SCM Building or another suitable location, and the companion costs that would be involved in such a move.

#### TASK FORCE ON ATHLETICS AND RECREATIONAL FACILITIES

Working with the Athletics Project Coordinating Committee (APCC), this task force helped coordinate the inventory of campus sports and recreational facilities. The APCC, working with consultants hired to complete a master plan for sports facilities, has completed Phase I of this inventory.

With indoor and outdoor facilities spread throughout the campus and surrounding communities, and four separate departments (one academic and three non-academic) sharing space in most areas, this has not been a simple task. Phase I is completed and it is recommended that Phase II be coordinated in such a manner that the master plan (to be completed in Fall 1981) will serve as the task force report.

# Aggregate Evaluations



### AGGREGATE EVALUATIONS RESULTS

The condition of buildings in each academic precinct has been evaluated under Phase I. The resulting ratings are summarized in the Table "Summary of Buildings Ratings" filed as part of that report, and included in the 'Overview' sections of the present document for the respective precincts. When aggregated for the whole campus, the ratings give a comprehensive picture of the current condition of campus buildings. Maps 4 to 11 inclusive graphically depict this condition for each scale of measurement, thus highlighting the buildings most in need of improvement. Each map is accompanied by statistical summaries of the total outside gross square feet (OGSF) of buildings falling under each of the rating levels in the measurement range from very poor to very good. The accompanying text for each map summarizes the main conclusions derived from the data. The tables and text are restricted to data related to the five academic precincts. In the maps, the ratings given to buildings outside academic precincts, where available, have been included. Maps, tables and accompanying text are included for each of the following headings:

- Map 4 - Age
- Map 5 - Program Suitability
- Map 6 - Fire and Life Safety
- Map 7 - Structural Safety
- Map 8 - Utilities
- Map 9 - Accessibility
- Map 10 - Maintenance
- Map 11 - Weighted Average

B U I L D I N G      A G E

| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Prior to 1921   | 20                          | 28.2     | 576,891     | 10.9     |
| 1921 - 1935     | 13                          | 18.3     | 1,171,658   | 22.1     |
| 1936 - 1950     | 9                           | 12.7     | 411,758     | 7.8      |
| 1951 - 1965     | 22                          | 31.0     | 2,305,731   | 43.4     |
| 1966 - present  | 7                           | 9.9      | 842,426     | 15.9     |

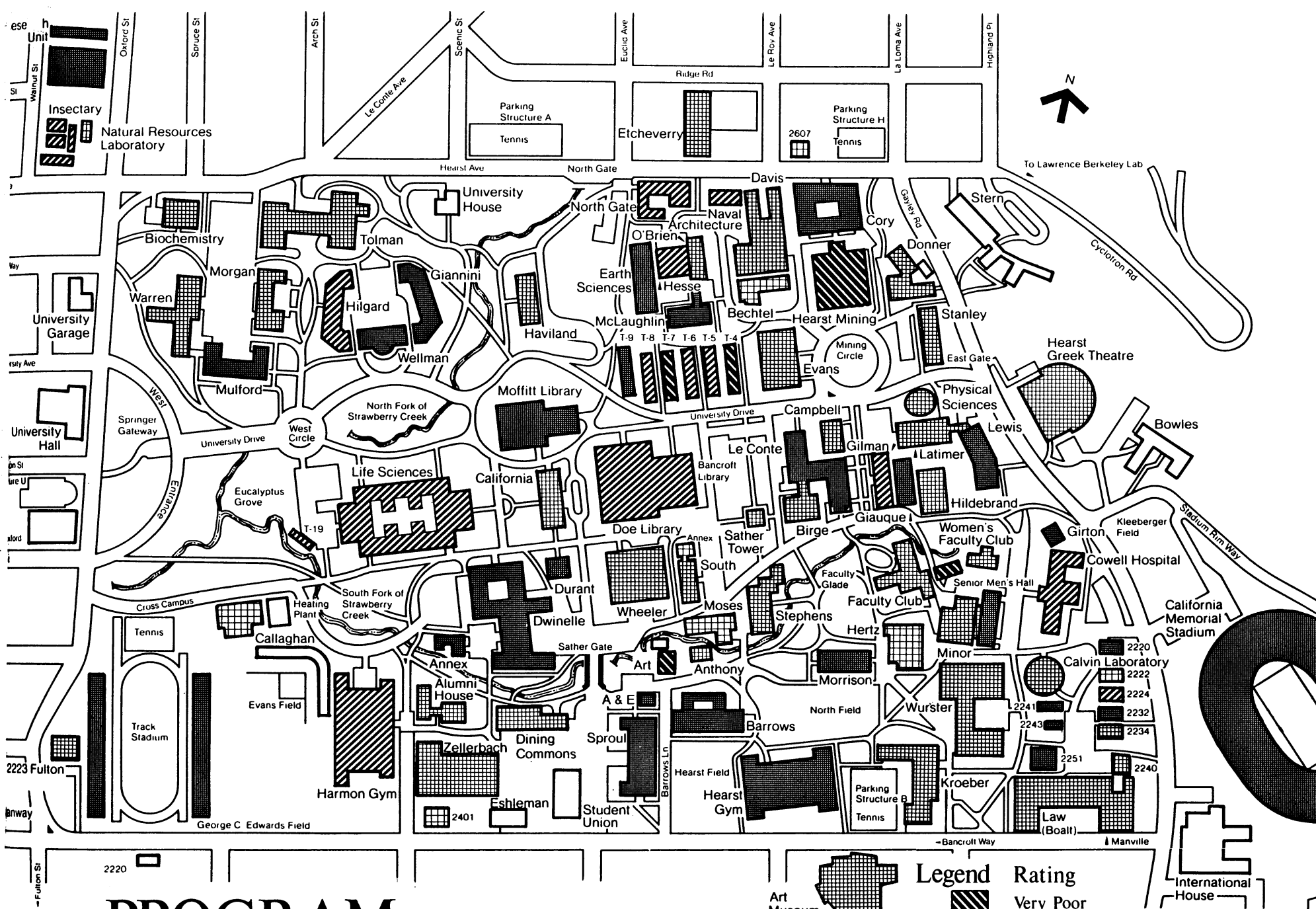
Of the seventy-one major buildings surveyed in the five precincts, thirty-three buildings or 46.5% of the total are fifty years old or will be by 1985. They account for 33% of the total OGSF. These comprise the majority of buildings with historical designation, and are most in need of rehabilitation. Together with the nine buildings built between 1936 and 1950, they comprise nearly 60% of the number of buildings and over 40% of the total OGSF in the academic precincts. Their useful life could be extended by adequate maintenance and improvements to adapt the buildings to changing programs. However, since these two conditions have rarely been met, age becomes an indicator of program inadequacy and physical deterioration. Age also generally correlates with the need for improvements in utility, circulation and structural systems to meet current code requirements related to fire and life safety, seismic safety, handicapped accessibility, and other licensing and program accreditation requirements.



P R O G R A M   S U I T A B I L I T Y

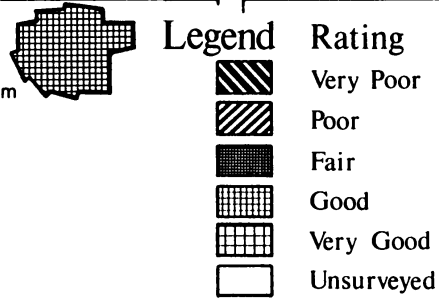
| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Very Poor       | 3                           | 4.2      | 155,063     | 2.9      |
| Poor            | 11                          | 15.5     | 700,223     | 13.2     |
| Fair            | 21                          | 29.6     | 1,422,962   | 26.8     |
| Good            | 27                          | 38.0     | 2,871,373   | 54.1     |
| Very Good       | 9                           | 12.7     | 158,853     | 3.0      |

Fourteen buildings (or 19.7% of the 71 buildings surveyed) are rated poor or very poor on program suitability. They account for 16.1% of the total OGSF. They are clear candidates for substantial re-adaptation to suit program demands. Twenty-one additional buildings (29.6% of the total) with 26.8% of the total OGSF, rate fair on program suitability and are candidates for improvement. It should be noted that in judging the suitability of a building space for the program it serves, emphasis is placed on space quality rather than the degree of overcrowding, which is dealt with separately under Phase II of the work.



# PROGRAM SUITABILITY

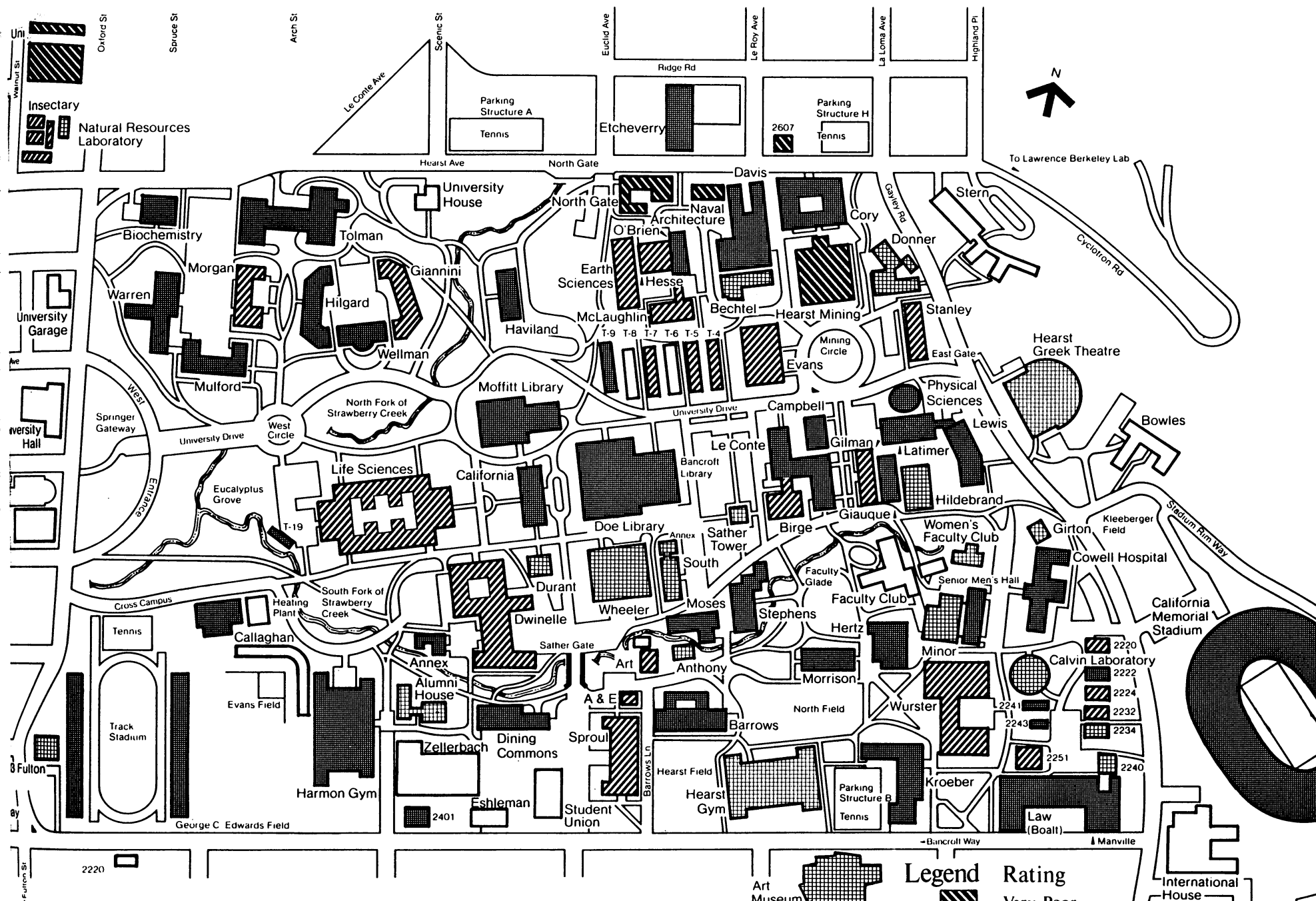
## Berkeley Campus Space Resources Survey



F I R E   &   L I F E   S A F E T Y

| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Very Poor       | 5                           | 7        | 264,507     | 5        |
| Poor            | 18                          | 25.4     | 1,735,579   | 32.7     |
| Fair            | 36                          | 50.7     | 2,653,836   | 50       |
| Good            | 12                          | 16.9     | 654,542     | 12.3     |
| Very Good       | 0                           | 0        | 0           | 0        |

None of the buildings on campus rate very good on Fire and Life Safety. They all need some corrective work, but twenty-three of them (32.4 of the 71 surveyed buildings) are rated poor or very poor and therefore in need of substantial corrective work. They account for 37.7% of the total OGSF. Some of these are listed on currently planned campus code correction projects. Minimal corrections to bring the twenty-three buildings at least to a fair rating should be implemented as a matter of urgency to eliminate the potential for loss of life posed by serious fire code violations especially in circulation systems, exiting, and material flammability.



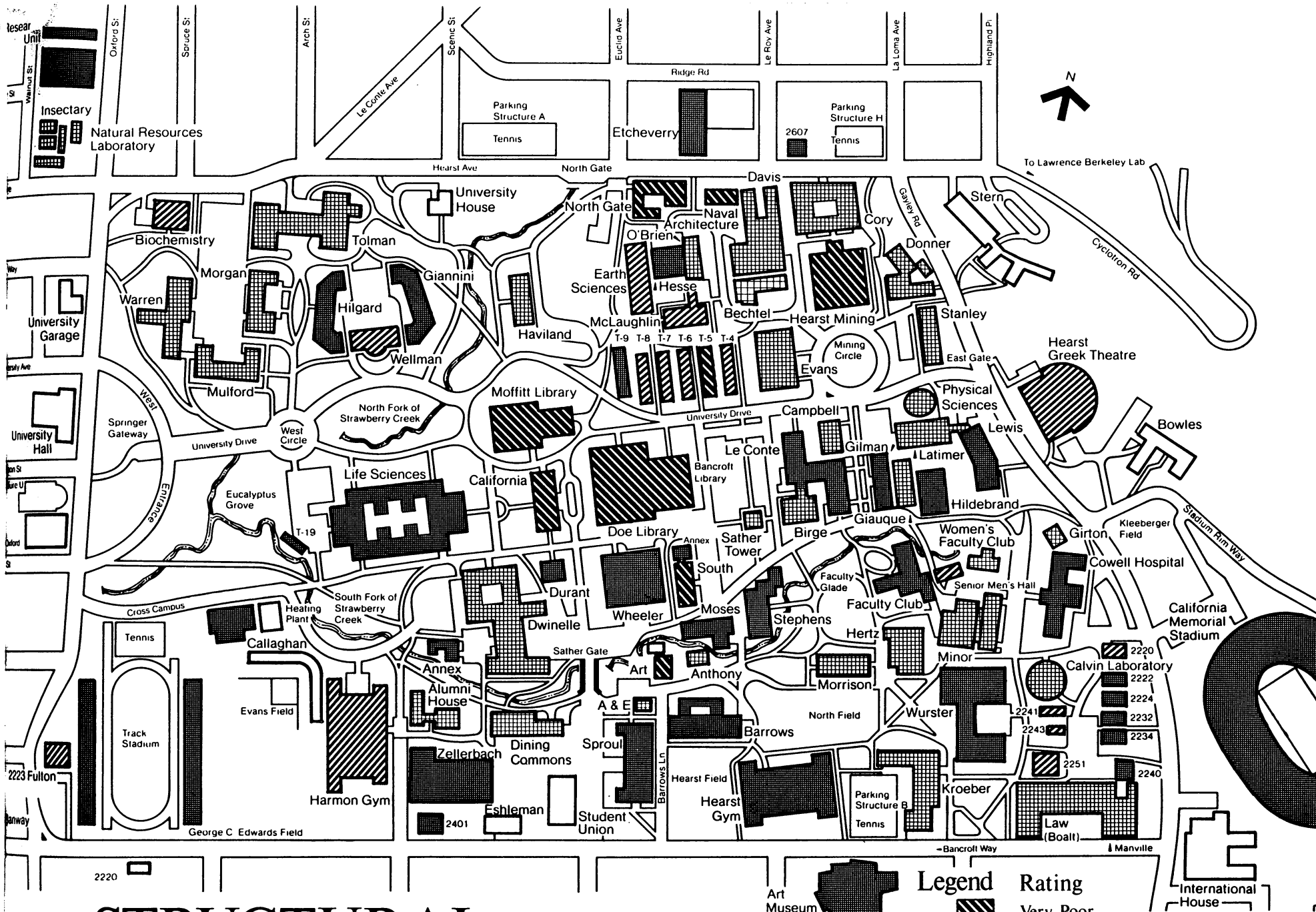
# FIRE AND LIFE SAFETY

Berkeley Campus Space Resources Survey

# S T R U C T U R A L   S A F E T Y

| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Very Poor       | 4                           | 5.6      | 176,140     | 3.3      |
| Poor            | 10                          | 14.1     | 382,452     | 7.2      |
| Fair            | 33                          | 46.5     | 2,436,039   | 45.9     |
| Good            | 23                          | 32.4     | 2,262,808   | 42.6     |
| Very Good       | 1                           | 1.4      | 51,025      | 1.0      |

Of all 71 buildings surveyed, only one rates very good on Structural Safety. Of the balance, fourteen buildings (19.7% of the total) with 10.5% of the total OGSF rate poor or very poor in structural safety. Many of these also rate very poorly on the Seismic Hazard Survey of the State of California Buildings. The campus must await a State-wide policy on the mechanism and priorities for funding projects to solve this massive problem. Because of the high costs involved in bringing all existing buildings up to full compliance with the most recent codes for seismic resistant construction, full correction of all deficiencies in all buildings is prohibitive. A mini-program designed to do the maximum good within reasonably manageable costs should be implemented. It could start with some of the fourteen buildings rated poor or very poor and the crucially needed work that would reduce major hazards of collapse and improve their condition to at least a fair rating.



# STRUCTURAL SAFETY

Berkeley Campus Space Resources Survey

# U T I L I T I E S

| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Very Poor       | 9                           | 12.7     | 1,042,711   | 19.6     |
| Poor            | 34                          | 47.9     | 2,448,501   | 46.1     |
| Fair            | 19                          | 26.8     | 1,280,975   | 24.2     |
| Good            | 9                           | 12.7     | 536,277     | 10.1     |
| Very Good       | 0                           | 0        | 0           | 0        |

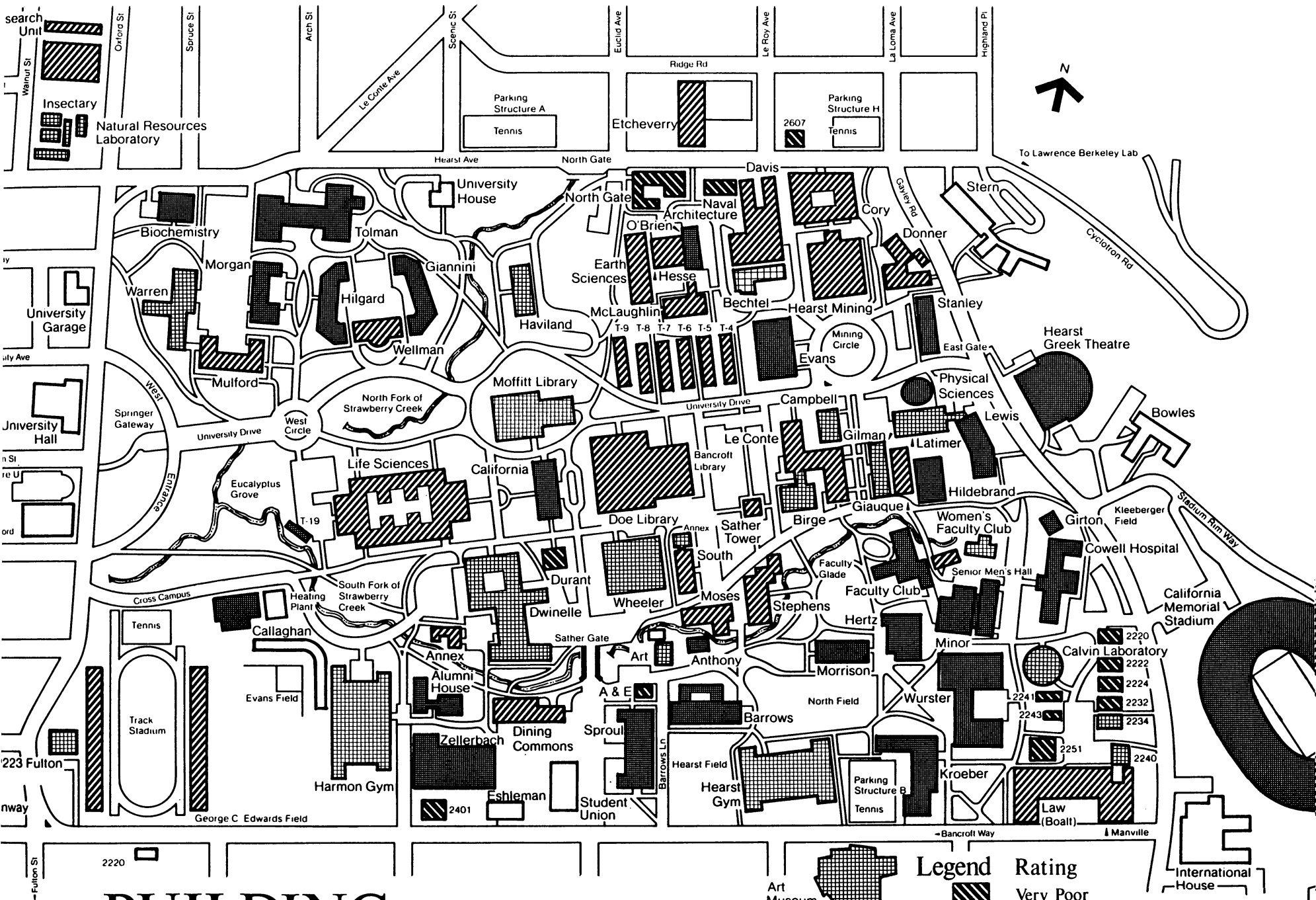
Strangely enough, this is the area that draws the most complaints from building users. None of the 71 buildings surveyed draws a rating of very good, and only nine are rated good. In contrast, forty-three buildings (60.6% of the total) with 65.7% of the total OGSF are rated poor or very poor and within these, nine buildings with nearly 20% of the total OGSF are rated very poor, a devastating statistic. While some of the poor ratings are due to deficiencies in elevators and electric current supply, the large majority of the poor ratings is due to faulty air delivery systems. Obviously, the current practice of responding to emergencies with ineffective palliatives in individual buildings is not working. The basic premise in the design of ventilation systems on this campus must be re-examined. Systems that deliver strong currents of cold air on cold days and that add to the dust content of the air threaten the health of workers and endanger the results of scientific experiments. A campus-wide program of redesign as needed, correction, cleaning, and calibration of air delivery systems is required, to be preceded by a technical study aimed at uncovering the causes for such wide-spread deficiencies. To a lesser extent, the same situation seems to apply to many elevators where breakdowns are frequent, intensity of use has been underestimated in their design, and repairs seem to be of no avail. The well-worn phrase about an ounce of prevention being worth a pound of cure is appropriate here. The effect on faculty, staff and student morale, though difficult to measure, is rather obvious here, as documented in the sense of frustration and anger exposed in the course of the survey.



# A C C E S S I B I L I T Y

| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Very Poor       | 12                          | 16.9     | 118,164     | 2.2      |
| Poor            | 21                          | 29.6     | 2,082,057   | 39.2     |
| Fair            | 24                          | 33.8     | 2,102,986   | 39.6     |
| Good            | 13                          | 18.3     | 954,232     | 18.0     |
| Very Good       | 1                           | 1.4      | 51,025      | 1.0      |

Thirty-three buildings (46.5% of the total surveyed) with 41.4% of the total OGSF rate poor or very poor on accessibility. Some of these are due for corrective work as part of currently planned campus-wide programs of corrections to improve handicapped access. The campus has a moral and legal obligation to open up programs to the physically disabled. Here again 100% compliance for every space on campus may be too onerous a goal, and a program to bring the thirty-three buildings up to a fair rating may be the realistic alternative to shoot for in the short term until adequate funding is available for full compliance.



# BUILDING ACCESSIBILITY

## Berkeley Campus Space Resources Survey

M A I N T E N A N C E

| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Very Poor       | 5                           | 7.0      | 46,451      | 0.9      |
| Poor            | 34                          | 47.9     | 3,222,660   | 60.6     |
| Fair            | 23                          | 32.4     | 1,591,346   | 30.0     |
| Good            | 8                           | 11.3     | 445,589     | 8.4      |
| Very Good       | 1                           | 1.4      | 2,418       | 0.1      |

The dwindling budget allocations to maintenance work on campus in recent years has resulted in a situation where only nine out of 71 buildings surveyed receive good or very good rating on maintenance. At the opposite end, thirty-nine buildings (56.9% of the total) with 61.5% of the total OGSF are rated poor or very poor. A substantial effort must be mounted, backed up by adequate budgetary support, to turn the tide of dilapidation, deterioration and neglect that has been allowed to continue for too long.



W E I G H T E D      A V E R A G E

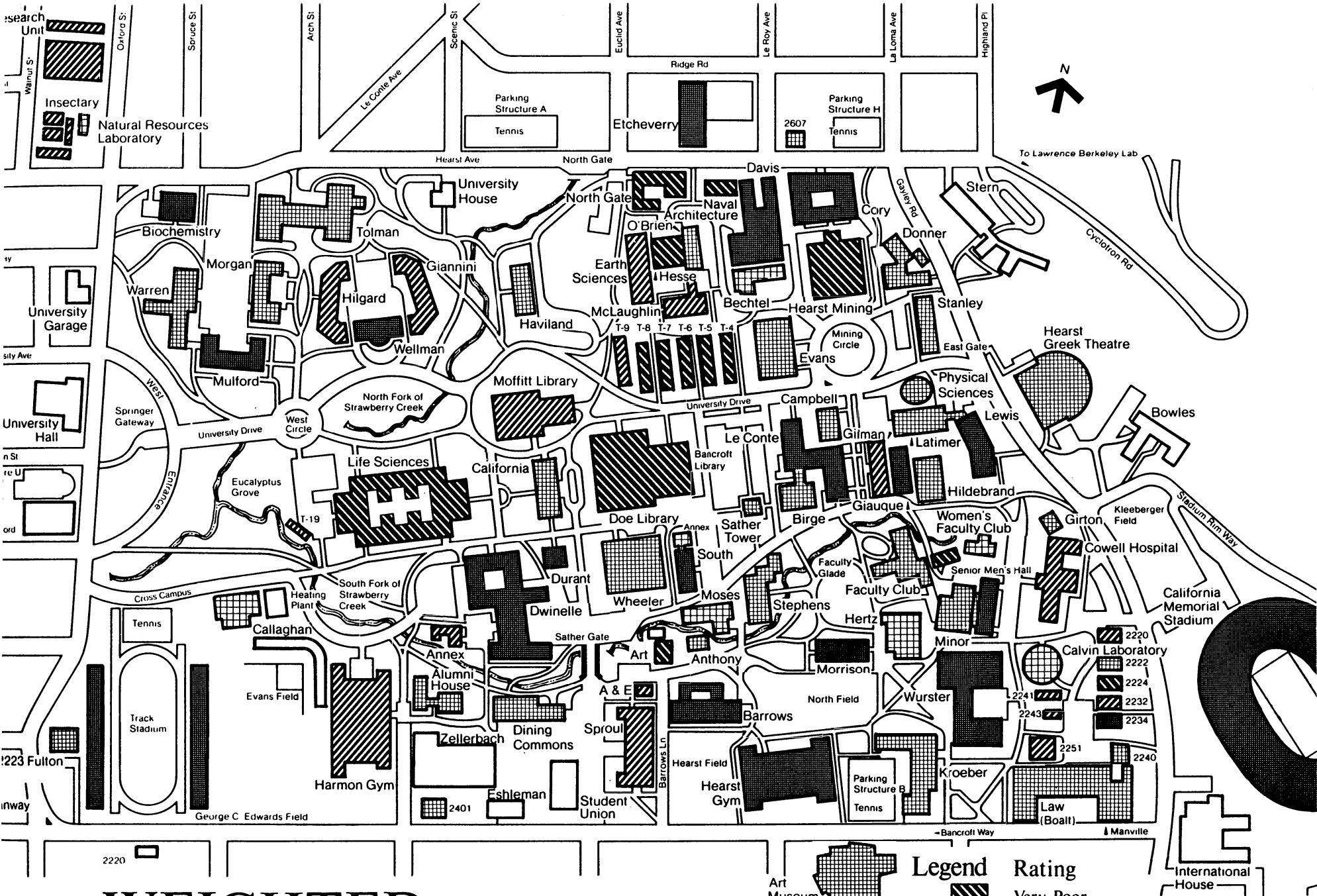
| <u>Category</u> | <u>No. of<br/>Buildings</u> | <u>%</u> | <u>OGSF</u> | <u>%</u> |
|-----------------|-----------------------------|----------|-------------|----------|
| Very Poor       | 9                           | 12.7     | 624,038     | 11.8     |
| Poor            | 15                          | 21.1     | 613,673     | 11.6     |
| Fair            | 17                          | 23.9     | 1,790,934   | 33.7     |
| Good            | 23                          | 32.4     | 2,094,110   | 39.4     |
| Very Good       | 7                           | 9.9      | 185,709     | 3.5      |

The weighted average evaluation is computed by giving the following weight to various evaluation scales:

|                      |          |               |         |
|----------------------|----------|---------------|---------|
| Program Suitability  | 9 points | Utilities     | 1 point |
| Fire and Life Safety | 3 "      | Accessibility | 1 "     |
| Structural Safety    | 3 "      | Maintenance   | 1 "     |

This measure emphasizes program suitability by giving it 9 points or 50% of the total, followed by fire and life safety, and structural safety three points each for a combined weight of 33% of the total. These are the factors that, according to the present space plan, should overwhelmingly determine the selection of candidates for improvement.

Of the seventy-one buildings surveyed in the five academic precincts, only thirty are rated as 'good' or 'very good' in this overall weighted scale. Twenty-four buildings with 23.4% of the total OGSF are in the 'poor' or 'very poor' categories. They have a combined OGSF of 1,237,711 square feet and must be given special attention in the program of space rehabilitation and upgrading which the campus is undertaking.



# WEIGHTED BUILDING RATING

## Berkeley Campus Space Resources Survey

The  
Berkeley  
Campus  
Space  
Plan

Policies

## THE NEED FOR "SURGE SPACE" IN THE LONG-TERM BERKELEY CAMPUS DEVELOPMENT PROGRAM

The data bank developed in the Phase I survey of buildings on the central Berkeley campus reveals not only a wide variety of required code corrections, but the need for an equally wide variety of upgrading in order better to carry out the University's mission of teaching, research, and public service. Further, of course, there is the recognition that a number of campus buildings are identified as historic buildings. There is a need to maintain the facades and other historic features of these buildings, and as indicated in previous sections, there is a limited number of sites for new buildings. Unknown to many of the individuals who worked on the space survey, however, is the additional constraint imposed upon the campus that in a major upgrading of space, code corrections must be included in the same program.

After examining all of the buildings on the campus, placing them in a priority list, and utilizing any of several indices, it readily becomes apparent that all buildings require some development work - some of them at the minor capital improvement level, but a very large number requiring complete renovation to correct not only code deficiencies but to upgrade the space to meet present day program needs. Finally, of course, it is obvious that there will be few new buildings because of the limiting conditions of site location in the central campus area.

New buildings do not usually have an impact during their construction period upon the ongoing academic program, and minor capital improvements can usually be scheduled for a short period of time, quite often during the summer when students are not present in large numbers. There also exists the category of major capital improvements in which a complete building is renovated and thus must be emptied, at least partially, before any work can be done. It is this third category, in the middle scale of financial investment, which

requires a mature campus such as Berkeley to petition for what often has been called "surge space," space which temporarily is assigned to a group while an existing building is being renovated. Examination of the spectrum of buildings on this campus with their varying sizes indicates that there is a need for approximately 100,000 square feet of space which could be assigned temporarily to one unit as its building is renovated, then to a second unit and so on until each project is completed. For minimal impairment of the academic program it would be most convenient for this surge space to be located in two areas of the campus, one in the western region and a second surge space center somewhere at the eastern end of the campus. One should remember that the north-south axis of the campus is much shorter than the east-west axis.

Inasmuch as the campus already has stated its first priority, namely, the upgrading and code correction in the area of the life sciences, it is convenient to note that a section of the Life Sciences Complex could be utilized as surge space for other building developments on the western portions of the campus as these developments occur. Conceivably 50,000 square feet could be reserved in the renovated LSB Building or in Mulford Hall after the new construction has been completed for surge space activities involving buildings in the Agricultural Sciences complex, Warren Hall, Tolman Hall, etc.

Separately, one is attracted to the utilization of the Cowell Memorial Hospital complex as a potential surge space unit for the eastern region of the campus. Medical and health needs for the student body have changed markedly over the years. With the advent of health maintenance organizations in the private sector and the changing needs in the field of student services for other types of office space, early priority should be given to the construction of a student services building and to locating all student services in a convenient single location on the campus, thus freeing space in Cowell Hospital and easing future campus development needs.

When campus development has been completed within the framework that can be envisioned at this time, there always is the question of what should be done with the surge space so generated, a small fraction of our total campus space. Conceivably there also will be a need for space to be assigned permanently to new units as they develop. Finally, the surge space in both of the buildings mentioned always could be used for an increased program in research and public service - much of which could be funded from State agencies.

In summary, therefore, there is a documented need for the surge space concept to be implemented early in the process of renovation on this campus. Fortuitously the biological sciences development leads to the possibility of surge space to the west; and the urgent need for a comprehensive student services building could lead to the development of convenient surge space to the eastern portion of the campus. Agreement that such space, over and above the justified space for this campus, must be made available in the near future is the key to the campus development program.

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Other policies affecting the Berkeley Campus Space Plan are discussed in the following sections on Space Utilization and Project Selection Criteria.

# Space Utilization

## DISCUSSION OF QUANTITATIVE SPACE NEED BY DISCIPLINE

As stated earlier, the Restudy standards as guidelines for space allocation are more relevant to some disciplines than others. The following comments are directed to the numerical results of applying these standards to each discipline, and the extent to which these results reflect the quantitative space need of the relevant departments. It must be noted that the standards were never intended for application to individual departments, and the results of doing so can be extremely misleading, particularly in disciplines such as engineering where individual department needs may vary widely. Following these comments, an overview of major planned space reassignments is given and the impact of these, together with any planned space additions, is discussed on a precinct-by-precinct basis.

Biological Sciences: actual (245,886 ASF) is 128% of Restudy (191,412 ASF)

The biological sciences are a major program area where needs substantially exceed the Restudy allowances. A detailed discussion of this is presented in the Project Planning Guide for the Biological Sciences Construction and Alterations project. Briefly the use of more, and more complex, equipment and supporting services requires additional space not provided for when Restudy standards were developed. The typical laboratory of twenty-five years ago bears little resemblance to a contemporary biology laboratory. As modern biology has become increasingly more experimental and technological, with less emphasis on collection and collation of specimens, increasing needs have arisen for centralized facilities and for expensive equipment and techniques which consume space. In addition to regular faculty, staff and graduate students, modern biology is carried out with greater participation in the laboratory by a variety of technical staff, postdoctorals and advanced undergraduates who also require space. Also, more work is done in the laboratory rather than in the field, a

change which also requires more space. The additional space to be provided by the proposed Genetics and Plant Biology and Organismal Biology Buildings will be adequate for the life sciences, in terms of amount, in the foreseeable future. (Some space will be released in various buildings for nonbiology use, but the total space assigned to the biological sciences will still exceed the Restudy standards.)

Agricultural Sciences: actual (186,649 ASF) is 93% of Restudy (200,554 ASF)

There is a deficiency in the agricultural sciences, as indicated by the Restudy standards, but the magnitude is greater for many of the same reasons given for biological sciences. The Biological Sciences Construction and Alterations project includes provision for College of Natural Resources units which are heavily oriented toward biology (Genetics, Plant Pathology, and Plant and Soil Biology).

Mathematical Sciences: actual (74,074 ASF) is 183% of Restudy (40,564 ASF)

The needs of the mathematical sciences (Mathematics and Statistics) are not adequately addressed by Restudy because of the underestimation of the need for research space and for teaching laboratories. Statistics in particular carries out research programs in biostatistics and other fields for which space is required beyond the small faculty allowance included in Restudy. In addition, no teaching lab allowance is provided but thousands of square feet of specialized laboratory space are required for instruction in Statistics and Mathematics. However, it has been recognized that space assignments to both departments have exceeded what could be justified on the basis of program need in comparison with other units, and a significant reduction in the percentage of actual as compared in the Restudy will occur during 1982 as a consequence of space reassignments.

Physical Sciences: actual (352,343 ASF) is 126% of Restudy (280,631 ASF)

The physical sciences - Chemistry, Astronomy, Geology and Geophysics, and Physics - require space allocations in excess of Restudy standards for some of the same reasons given for the life sciences. Space needs have increased since Restudy because of increased equipment needs and the greater number of professional researchers and technicians in the laboratories. In Chemistry, additional requirements for instrumentation and the need for fume hoods mean more space is needed. In Geology and Geophysics, more work is done in the laboratory rather than in the field and again the need for sophisticated instrumentation has increased. A new College of Chemistry building and reassignments in the Earth Sciences Building should provide enough space for this discipline.

Engineering Sciences: actual (482,248 ASF) is 78% of Restudy (613,770 ASF)

Engineering is presently experiencing a severe shortage of space in the Electrical Engineering and Computer Sciences Department. The extent of need, however, is somewhat exaggerated by the standards. A proposed addition to Cory Hall and a later addition to Etcheverry Hall should provide adequate space for the Department and the College of Engineering as a whole, provided funds for alterations of outmoded space are also available. Chemical Engineering also is short of space, but this situation will be rectified when the new College of Chemistry building is built.

Psychology: actual (59,403 ASF) is 123% of Restudy (48,188 ASF)

No major space changes are planned for Psychology, which has generally an adequate amount of space in Tolman Hall. Extensive renovation to its animal quarters are needed, however. The restudy space is below actual in part because the standards do not cover the Psychology Clinic, technically a departmental function but actually a nonstandard operation in terms of space.

pated by eventual relocation of this unit from the building. Two renovation projects in this precinct are also judged to have high priority: improvements in ventilation, utilities and fume hoods in the College of Chemistry buildings, and modernization of laboratory spaces in Stanley Hall for Molecular Biology and the Virus Laboratory.

Space in the remaining precinct, Engineering and Earth Sciences, requires more extensive renovation than in any area of the campus excepting Agriculture and Life Sciences. Buildings such as Hearst Mining, Naval Architecture and Hesse are extremely old and need major, thorough rehabilitation, but even the middle aged buildings such as Earth Sciences and Cory were built for units whose programs have so changed that many of the modern techniques and equipment fit only with great difficulty, if at all, into the space as originally designed. Even the newest Buildings like Etcheverry and the addition to Davis have inflexible laboratory spaces which are creating problems as research needs and interests change.

The unit with the most serious space shortage is the Electrical Engineering and Computer Sciences Department - both the electrical engineering component, which is housed in Cory Hall, and the Computer Science Division, which is located almost entirely in Evans Hall. The only proposal in this precinct for new space is for this Department. The microelectronics laboratory alterations already funded by the State are critical to the vitality of the Department. Serious space deficiencies and overcrowding, however, continue to worsen, and an additional floor to provide office and light research space is essential. In the longer term, one of the originally planned wings to Etcheverry Hall is also proposed; the entire Computer Science Division would be relocated to this wing to provide adequate expansion space for the growing programs in computer science. Major renovation projects for Hearst Mining Building, Hesse Hall, Naval Architecture Building, McLaughlin Hall, and Earth Sciences Building are essential for the con-

tinued health of this precinct's programs. The Department of Biophysics and Medical Physics suffers at present from a severe shortage of space in this precinct, but funds are being provided for the renovation of space to be made available by relocating LBL activities off the campus within the next year or two.

It should be noted that the strategy for seismic corrections will be a major factor in the timing of many of these changes. Depending on the availability of funds and the results of seismic studies now underway, space released as a result of new construction may be required as surge space for an interim period to enable seismic work or other major building upgrading to be carried out. The uncertainties of funding at the present time make it impossible to specify a definite timetable, or even a relative ordering of the various relocations and reassignments which are planned.

The following reassignments, the results of the very first step described above, are nearly finalized. They are provided as an example of the space changes which can follow from one or two initial reassignments. Obviously, this level of detail cannot be projected very far in advance, given the uncertainties discussed in the preceding paragraphs as well as the continually changing needs of the campus' academic programs.

| <u>Program Reassigned</u>       | <u>Program Code</u> | <u>ASF Change</u> |
|---------------------------------|---------------------|-------------------|
| <b>North Gate Hall Reassign</b> |                     |                   |
| WRC Archives                    | 510100              | -4,693            |
| Career Pl & Plcmnt              | 610000              | -360              |
| Development Ofc                 | 740100              | -5,341            |
| Engin Dean                      | 110711              | -75               |
| Journalism                      | 120811              | 10,535            |
| ITS                             | 210700              | -1,141            |
| Gen Academic                    | 119911              | 1,075             |
| <b>Evans Reassign</b>           |                     |                   |
| Mathematics                     | 110411              | -6,707            |
| Statistics                      | 110411              | -785              |

|                                |        |        |
|--------------------------------|--------|--------|
| Journalism                     | 120811 | -7,207 |
| Logic & Method                 | 111411 | 542    |
| Esame                          | 111411 | 146    |
| Community Teach Fellowship Pgm | 730200 | 292    |
| Engin EECS                     | 110711 | 2,329  |
| Near Eastern Studies           | 111211 | 6,000  |
| SSEAS                          | 111211 | 3,000  |
| IIS                            | 211300 | 1,000  |
| Computing Affairs              | 540100 | 1,390  |

#### Dwinelle & Annex Reassign

|                     |        |        |
|---------------------|--------|--------|
| Near Eastern        | 111211 | -4,548 |
| SSEAS               | 111211 | -2,519 |
| Inst East Asia St   | 211300 | 3,811  |
| Dramatic Art        | 111021 | 564    |
| I & R Social Sci    | 110911 | 1,000  |
| I & R Letters       | 111111 | 492    |
| I & R For Languages | 111211 | 1,200  |

#### 2241 College Reassign

|                      |        |        |
|----------------------|--------|--------|
| Near Eastern Studies | 111211 | -1,077 |
| Gen Admin            | 720600 | 1,077  |

#### Stephens Reassign

|                    |        |      |
|--------------------|--------|------|
| ITS                | 211300 | -950 |
| Inst East Asian St | 211300 | 950  |

#### Barrows Reassign

|                    |        |        |
|--------------------|--------|--------|
| Inst East Asian St | 211300 | -3,992 |
| Bus Admin          | 120111 | 1,992  |
| I & R Social Sci   | 110911 | 2,000  |

# Project Selection Criteria

## PROJECT SELECTION CRITERIA FOR THE CAMPUS SPACE PLAN

### Distinctive Characteristics of the Present Campus Space Plan

The current effort to prepare a Campus Space Plan aims at the completion in the near future of a Long Range Development Plan for the Berkeley campus. The content and recommendation of such a plan will differ from previous plans, including the most recent one produced in 1962, in important ways. As mentioned earlier, previous plans on this campus, as for most campuses of the University system, were formulated during periods of growth. It was natural to find in them a focus on land use planning, statistics on growth factors, locations of future buildings, and the aesthetics of building masses and open space.

The current effort at Berkeley is conducted at a time when the campus has reached its enrollment target, the main structure of building distribution is fairly well defined, land coverage at 20% is close to the 25% limit, and a substantial proportion of the buildings is fifty years old. Changes in the needs of Instruction and Research programs, mandated codes and regulations, and increasing social awareness, when added to contextual conditions, make it imperative that the content of a campus space plan should shift its emphasis from growth and new building to a balanced program of moderate growth, conservation, renovation, and adaptation.

The current Space Plan examines the inner workings of spaces inside the building envelope, faces the realities of the consequences of steady-state student enrollments, and strikes a balance between the provision of additional space and the renovation and adaptation of existing space. A balanced program about evenly divided between additions and renovations carries with it the corollary requirement that campus resources be similarly distributed to support the various elements of the resulting capital improvement program.

To insure that the proposed program does respond to the changed context and needs, the findings of the Phase I and II work were subjected to a demanding project selection process with clear criteria for project evaluation. The process used in determining the projects worthy of inclusion in the present space plan follows.

### Project Selection Criteria

In selecting major capital improvement projects for inclusion in the Campus Space Plan, one may distinguish projects falling into three main categories, with some unavoidable overlap likely to happen in some cases. The first category includes projects involving growth, i.e., where additional new space needs to be created. The second category includes renovations—remodeling in existing space as applied to a particular building. The third category involves the application of a program of improvement campus-wide, precinct-wide, or over a number of buildings requiring similar kinds of improvements. In selecting projects, certain limitations of this year's effort should be remembered and certain exclusions become necessary. The following discussion addresses these limitations and exclusions and proceeds with the examination of criteria for selection of projects in each of the three categories of major capital improvement.

### Limitations and Exclusions

The present campus space plan study is limited to central campus defined roughly as the rectangle bounded by Bancroft, Oxford-Fulton, Hearst and Gayley-Piedmont, with a few exceptions of buildings adjacent to but outside the rectangle. Therefore, buildings on the hill, at the Richmond Field Station and at other satellite locations are excluded. Within the perimeter of the central campus, minor structures and temporary buildings scheduled for early demolition are excluded from consideration in the list of candidates for projects under the Campus Space Plan. Similarly excluded are minor projects that can be accomplished through the Minor Capital Improvement Program as presently

defined, or through the current level of budgetary allocations to the units on campus.

## I. GROWTH

Although the campus is now and is expected to continue to be in a steady state with respect to total student enrollment, a certain amount of growth will need to be entertained, resulting in an overall net increase in the total ASF and OGSF. This growth may result in the addition of new buildings or of increments to existing buildings. Because the central campus is not very far from the 25% limit on covered-by-buildings land wisely established in previous Long Range Development Plans, additions entailing new buildings and intensified density of buildings should be resorted to sparingly. The above "Academic Prospectus" and the recommendation on the Phase II task forces are major data sources for this part of the work.

### New Buildings

The addition of a new building or buildings can be justified on the basis of one or more of the following criteria after exhausting the possibilities of accommodating the needs in existing space:

- programmatic projects of expansion in the academic plan of a unit or units, creation of new specialties with corresponding increases in student, faculty and staff FTE, and the need for specialized facilities.
- shifts in the composition of the student population or in the character of the academic instruction and research programs resulting in space requirements that cannot fit or be accommodated in existing space.
- need for new space to replace unsafe present space that cannot be economically rehabilitated.
- need for new space to replace existing space in obsolescent or deteriorated structures scheduled for demolition.

- programs using space substantially below what is considered necessary by applicable standards.

#### Building Additions

These can be thought of as additions of a few rooms up to a full floor or a small annex to an existing building. Justification for such additions may be based on any of the criteria listed above. The following criteria may also be used:

Programs hampered in their operations because of overcrowding in existing space.

Programs impeded from offering certain courses or engaging in certain lines of research work because of lack of suitable space, when it can be demonstrated that the courses or lines of research are essential for the vitality of the unit.

## II. RENOVATIONS

Substantial renovations of or in existing buildings, when expected to cost more than \$150,000 (limitation on Minor Capital Improvement projects) may be considered for inclusion in the Campus Space Plan. Because of the age and deteriorated conditions of a large number of buildings on the Berkeley campus, this category should receive more attention than has been the case in previous plans. Sources of information which are helpful in guiding the selection of projects in this category include the Seismic Hazard Survey, State of California Buildings, the Campus Historic Resources Survey by the Campus Planning Study Group (Dean Bender et al.), the Phase I reports and resulting tables and maps prepared for the five academic precincts by BCDC, and the technical reports prepared by DOFM staff. A subdivision of this category helps clarify the applicable criteria.

#### Gutting and Rebuilding of Building Interiors

This subheading comprises projects in which the amount of seismic hazard corrective work necessary to rehabilitate the space requires the complete gutting of the

building inside its envelope, or close to complete gutting, and the need to rebuild a virtually new structure inside that envelope. The selection of such projects may be justified by any combination of the criteria listed in section I above when the following conditions are also fulfilled:

The building has received a poor rating in the State survey of needed seismic corrections, or is rated poor in the category of seismic hazard in independent studies commissioned by the campus administration, or in other technical studies, and the amount of corrective work needed amounts to virtual gutting of the interior.

The cost of needed corrective seismic work, when added to the cost of needed programmatic changes, changes in utility systems, and other code corrections, is still cost-effective, i.e., results in less cost (including less tangible considerations such as program disruption) than would result from demolition and rebuilding of the building.

The building is on the National Register of Historic Places, or is a State landmark, or has been nominated and is in the process of receiving such distinction.

#### Substantial Renovations of Building Interiors

Projects may be selected under this subheading when they entail substantial renovations in a single building costing more than \$150,000 per project, but do not entail demolition or complete gutting and rebuilding of their building interiors. Criteria to be used in the selection of these projects include any combination of the following:

Any of the criteria listed in section I, when it can be shown that corrections of described deficiencies can be accomplished by renovation of existing space, i.e., without the need to add new space.

Where possible, the renovation of existing space to absorb some of the activities currently housed in unsafe or obsolescent structures scheduled for demolition.

Criteria listed under the section "Gutting and Rebuilding of Building Interiors," when the corrective work entailed can be accomplished without completely gutting the building interiors.

A poor cumulative weighted rating under all evaluation headings, or an extremely poor rating under one or two evaluation headings in the survey of campus space resources conducted under Phase I of the Campus Space Plan work. Tables resulting from the Phase I reports include evaluations under program suitability, fire and life safety, structural safety, utilities, accessibility, maintenance, as well as a building weighted cumulative rating. The worst off buildings in these composite evaluations are candidates for selection, with priority given to deficiencies in program suitability, life safety and code corrections.

The regrouping of activities of an academic unit now scattered in many locations, or the bringing together in close proximity of units with programmatic affinity.

## III. PROJECTS INVOLVING A CLASS OF PROBLEMS IN MORE THAN ONE BUILDING

Under this category are included campus-wide, precinct-wide projects as well as those entailing similar problems and corrective work in more than one building.

The campus has a number of such categorical campus-wide projects mainly addressing code deficiency corrections, energy conservation, elevator upgrading and the like. Completion of work already planned and funded under these projects should receive high priority. In addition, the following criteria are used to expand the scope of existing programs and to launch new programs.

#### Technically Oriented Programs

This subheading includes projects intended to complete the coverage of existing technically oriented programs, expand the scope of others, and institute new needed

programs. Criteria for selection of projects include the following:

The proposal would complete planned but unfunded portions of worthy campus-wide projects.

Categorical programs are applied to all buildings not included in previous planning stages, but found to rate very low in their evaluation under the specific program heading.

New categorical campus-wide programs are launched where it appears from the Phase I work or other sources that deficiencies under a specific heading recur in many buildings on campus but have not heretofore been addressed in a comprehensive manner campus-wide.

#### Academic Support Activities Programs

This subheading includes programs of renovations and improvements that may benefit from a campus-wide approach and are recommended by the task forces formed to study academically related support activities.

#### Non-academic Support Activities Programs

This subheading includes programs of renovations and improvements that may benefit from a campus-wide approach, and are recommended by the task forces formed to study non-academically related support activities.

### IV. MINOR CAPITAL IMPROVEMENTS

Although this category of projects is usually excluded from a formal Campus Space Plan statement, the crucial role these projects fulfill on our campus must be recognized. Because of the advanced age of a large number of buildings on the Berkeley campus, there is a more than normal need for appropriations under the Minor Capital Improvement Program to meet the needs of the campus. Especially crucial are the need to emphasize academically oriented projects of improvement in instruction and research facilities, the need to supplement

the State allocation of funds for this category of projects with other sources of funding, and the possibility of instituting budget line items in the budget of the deans and chairs, or of allocating discretionary funds to allow the units to complete small items or low-cost minor projects to relieve the pressure on the official minor cap program and "distribute the resources" more evenly on campus.

#### Project Identification

The documents collected or produced in the course of the current effort have been examined to yield lists of candidate projects for the Berkeley Campus Space Plan. Phase I of the academic precinct work yielded a number of candidate projects involving net growth in built areas as well as a large number of proposals for major renovations. It also unveiled the need for some campus-wide projects to correct deficiencies detected repeatedly in many buildings on campus. Phase II of the academic precinct work was instrumental in confirming or eliminating some of the growth projects proposed in Phase I and in originating alternate proposals to satisfy ascertained growth needs. Previous feasibility studies and specific discipline oriented needs studies yielded additional candidates for growth proposals. A large number of proposals for major renovations were also mentioned in the Phase II reports, as were additional ideas for campus-wide projects. The work done so far by the support activities task forces, although not complete, has progressed sufficiently to permit the identification of needed discrete building projects as well as some campus-wide projects.

#### Project Selection

The lists of candidate projects identified through the process described above were subjected to further scrutiny. Only those projects that could be justified in light of the criteria established for their type of project in the section on "Project Selection Criteria" were retained. For growth projects, evidence of satisfactory compliance was gleaned essentially from the Phase II

reports, from statistical analyses of the space utilization in existing space, and from previous or collateral studies on the projects. For projects involving major gutting and rebuilding of building interiors, the evidence used included the rating received by the building in the State survey of needed seismic corrections and in similar studies sponsored by the University.

Because of the extremely large number of identified needs and projects requiring substantial renovations of building interiors, an elaborate process of priority ranking was applied for this category of project. Discussion of building deficiencies in the Phase I and Phase II reports was helpful in reaching an initial screening of the projects based on stated urgency of the need. The ratings received by the building in which a project was proposed were then used for further screening. Rankings of the seventy-one major buildings in the five academic precincts were produced for each of the following scales of measurement.

1. A weighted total rating for the building as derived from the ratings received in Phase I under various evaluation scales, but assigning a weight of nine points to Program Suitability, three points to Fire and Life Safety, three points to Structural Safety, and one point each to Utilities, Accessibility, and Maintenance.
2. The rating of the building in the Seismic Hazard Survey, State of California Buildings.
3. The rating assigned to the building on Program Suitability alone in Phase I.
4. The combined ratings on Fire and Life Safety and on Structural Safety under Phase I.
5. The age of the building.

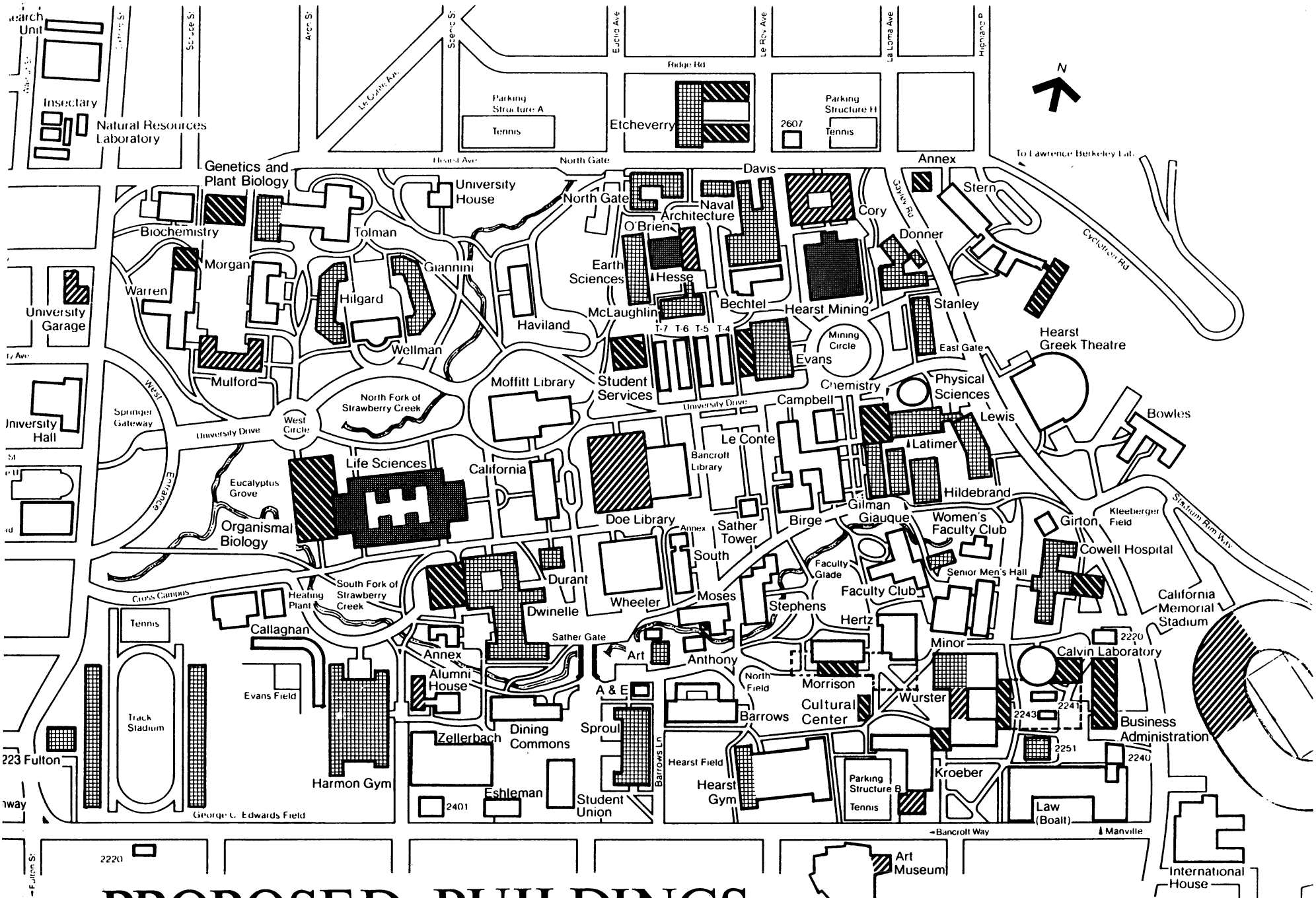
A subjective element was added to the above measurement scales. It is based on the comprehensive and detailed knowledge of the campus needs gained by the principal organizers of the study after a full year of exposure to the campus space problems as expressed by the users and sifted through multiple evaluation sieves.

T A B L E    1

OGSF, ASF AND COST OF PROJECTS INCLUDED IN BERKELEY CAMPUS SPACE PLAN

| <u>CENTRAL CAMPUS BUILDINGS</u>           | <u>OGSF</u>     | <u>ASF</u>      | <u>COST(\$)*</u>   |
|-------------------------------------------|-----------------|-----------------|--------------------|
| Total new construction                    | 1,399,400       | 879,200         | 272,570,000        |
| Deduct buildings to be removed            | <u>-172,000</u> | <u>-127,000</u> |                    |
| Net increase                              | 1,227,400       | 752,200         |                    |
| Total major renovations                   | 1,345,000       | 938,700         | <u>231,850,000</u> |
| Total new construction and<br>renovations |                 |                 | 504,420,000        |

\* 1981 Index



# PROPOSED BUILDINGS & ALTERATIONS 1981 - 2000

## Berkeley Campus Space Plan

### Legend

-  New Buildings & Extensions
-  Additions to Building
-  Interior Reconstruction
-  Interior Renovation

## BERKELEY CAMPUS TEMPORARY BUILDINGS

### Buildings Slated for Removal in 1962 LRDP that were removed:

Ambassador Apartments  
Astronomy Observatory  
Band Building  
Cafeteria  
Chemistry and Annex  
Cowell Temporary Buildings  
Crocker Laboratory  
Decorative Art and Annex  
Freshman Chemistry Lab  
Mechanics Building  
T-1, 2, 3  
T-10  
T-22  
University Extension  
2739-2707 Bancroft Way  
2 Barrows Lane  
2227 College Avenue  
2250 Piedmont Avenue

### Buildings Formerly Slated for Removal in the 1962 LRDP, now to be retained:

North Gate Hall  
Art Gallery  
Naval Architecture

### \*Buildings to be Removed:

T-4  
T-5  
T-6  
T-7  
T-8  
T-9  
T-19  
Campbell Hall Annex  
Campbell Hall Trailer  
Environmental Physiology Trailer  
Le Conte Trailer  
Minor Hall Trailers  
Stanley Hall Annex  
2224 Piedmont Garage  
Various sheds & storage buildings (ca. 1,000  
ASF)

### \*\*Buildings to be Removed when Necessary:

Architects & Engineers  
Callaghan Hall  
South Hall Annex  
University Garage  
2220 Bancroft Way  
2241 College Avenue  
2243 College Avenue  
2251 College Avenue  
2220 Piedmont Avenue  
2222 Piedmont Avenue  
2224 Piedmont Avenue  
2232 Piedmont Avenue  
2234 Piedmont Avenue  
2240 Piedmont Avenue

\*Buildings to be Removed consist of 58,000  
ASF and 78,000 OGSF of space.

\*\*Buildings to be Removed when Necessary  
consist of 69,000 ASF and 94,000 OGSF of  
space.



The same rationale for project selection was applied to select projects resulting from the work completed thus far by the academic support activities task forces.

Separate proposals and selections were prepared by DOFM for technically oriented projects and statements of needs involving programs under their jurisdiction. The rating tables produced under Phase I and the results thus far of the work of nonacademically related task forces were used as guides for project selection where applicable. The projects in the two lists prepared by BCDC and DOFM were merged in a single list of proposed projects for the Berkeley Campus Space Plan after considerable discussion of the list at various levels of internal administrative review.

Results of this selection process are displayed in condensed graphical form in Map 12 which shows the locations of new buildings and major renovations proposed for the planning period, and Map 13 which shows the structures of a temporary nature slated for removal as soon as practical or when their site is needed for another planned purpose.

Table 1 shows in tabular form the OGSF, ASF, and cost for the projects included in the Plan, subdivided into new space and renovations inside the boundaries of the Central Campus.

From Table 1, one can fathom the magnitude of the task that is proposed for the Berkeley Campus in the coming two (or three) decades to respond to its pressing needs for space addition and renovation.

When fully implemented, the Plan will at a maximum add to the central campus approximately 880,000 ASF or 1,400,000 OGSF of new construction at a cost close to \$ 270,000,000. During the same period, the buildings of a temporary nature slated for removal will have disappeared (see Map 13), reducing the ASF by 127,000 and the OGSF by 172,000. Thus, the net increase in built area on central campus as a result of the Plan would be in the order of

750,000 ASF or 1,200,000 OGSF. Table 1 also shows the needs for major renovations in buildings with nearly 940,000 ASF or 1,350,000 OGSF at a cost of approximately \$ 230,000,000.

The components of the Campus Space Plan thus offer a balanced program of limited additional space and extensive major renovations, complemented by projects in support services.

Whether the program can be implemented in full depends of course on many imponderables, including the capacity to muster the resources needed for a program of this magnitude. Preparers of this document can state with confidence that it represents the needs of the campus as seen in 1981 and as ascertained by an exhaustive survey of the conditions of the buildings on campus and a careful analysis of the space needs of the campus programs. Periodic reevaluation of these needs and of the ways to accommodate for them is imperative, this being the essence of a continuing planning process.

The first stage of implementation of this Campus Space Plan is described in the Project Planning Guide prepared in July 1981 for the project entitled "Biological Sciences Construction and Alterations." This project constitutes the first item of priority for the Campus at this juncture (October 1981). It fulfills the requirements for selection described earlier for new buildings and building renovation. Justification for the project and the urgency of its need are explained in the project planning guide. The supplement to this Campus Space Plan for 1981 which accompanies the transmittal letter for the project also outlines the consequences of the project on the capacity space for the campus.

As future priorities are identified and adopted in the years ahead, the present document will serve as a reference guide for contemplated actions. The projects for the planning period 1981-2000 shown on Map 12 (p. 183) would be candidates for consideration. The exact description of a

project, its location and configuration would be determined when a decision is made for its implementation on the basis of campus wide priorities at the time a decision is made to proceed with the preparation of a Project Planning Guide. It should be clear from the above that Table 12 does not constitute a physical plan for the Campus. Nor is it a fixed, immutable document. The yearly supplements updating the Campus Space Plan would amend the map as needed to reflect changes occurring over time.

# Credits



## CONTRIBUTORS TO THE DEVELOPMENT OF THE BERKELEY CAMPUS SPACE PLAN

This document has been edited and produced by BCDC with the help of numerous contributors. Every attempt has been made to include in the following lists the names of participants in various phases of the work. Apologies are due for any unintended omissions. Particular mention should be made of the authors of specific sections of this document, as follows:

Vice Chancellor R. B. Park - Academic Prospectus  
Vice Chancellor G. J. Maslach - Planning Process, Policies  
Dean Richard Bender - History  
Chairman Sami Hassid - Current Effort, Project Selection Criteria  
Planner Thomas Koster - Space Distribution, Space Utilization

### Chancellor's Office

Ira Michael Heyman - Chancellor; Roderic B. Park - The Vice Chancellor; Robert F. Kerley - Vice Chancellor, Administration; George J. Maslach - Vice Chancellor, Research and Academic Services; Dorothy A. Walker - Coordinator, Physical Planning; Glen H. Grant - Assistant Chancellor

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- Phase 1:** Alan Bearden, William Berry, David Brown, Nancy Caputo, E. R. Crossman, Dee Davis, John Frease, Douglas Fuerstenau, Gerald Giefer, Ann Goolsby, George Heuga, Howard Hutchinson, James Kelly, Bea Lukens, Roy Miller, A. V. Nichols, Gloria Novak, Ted Oberlander, William Oldham, Robert Oliver, Suzanne Qualls, Beverly Russell, Rosemarie Stock, Edward Sullivan, William Webster, John Wehausen, Baird Whaley, Edward White, Robert Wiegel, Dan Winterbauer
- Phase 2:** Robert Steidel - Chair, Diogenes Angelakos, Edward Alpen, Alan Bearden, Arthur Bergen, William Berry, Bruce Bolt, Robert Bragg, David Brown, Roger Byrne, Ian Carmichael, Edward Crossman, Iaian Finnie, Douglas Fuerstenau, William Garrison, Gerald Giefer, Charles Glassey, Ann Goolsby, Frank Hauser, David Hodges, Lane Johnson, George Leitmann, Beatrice Lukens, Hugh McNiven, Roy Miller, Theodore Oberlander, Donald Olander, Lawrence Ruby, Alexander Scordelis, Carlo Sequin, Rosemarie Stock, Edward Sullivan, George Turin, James Vance, William Webster

**Precinct Two: MATHEMATICS AND PHYSICAL SCIENCES**

- Phase 1:** Edwin Bayley, Melitta Beeson, Ed Dutto, Edward Feder, Bette Francis, Doris Frost, Nancy Hicks, Barbara Hirschler, Kimiyo Hom, Elmer Keith, Shoshichi Kobayashi, Jack Leister, Ron Martin, Paul Morton, Norman Phillips, Jane Picotte, Elizabeth Scott, Carlo Sequin, Art Slater, George Vdovin, Douglas Wayman, Christine Weber, Susan Williams, Michael Wisemen, Florence Wong
- Phase 2:** Norman Phillips - Chair, John Addison, Edwin Bayley, Alexis Bell, Peter Bickel, Gloria Bowles, George Break, Richard Calendar, Paul Chernoff, Alexandre Chorin, Jill Costa, Gerard Debreu, Edward Feder, Doris Frost, Roger Frye, Joseph Gates, John Gerhart, Art Gill, Donald Hanson, Morris Hirsch, Barbara Hirschler, Kimiyo Hom, Rita Kane, Grace Katagiri, Elmer Keith, C. Judson King, Shoshichi Kobayashi, Arthur Kuhn, Oscar Lanford, Eleanor Langlois, Nora Lee, C. Bart McGuire, Calvin Moore, Barbara Morgan, Paul Morton, William Nestruck, Erica Nietfeld, Gloria Novak, Richard Packard, Murray Protter, Fred Reif, Joseph Rosenthal, David Rubin, Elizabeth Scott, Carlo Sequin, Frank Shu, Howard Shugart, Richard Sutch, Susan Slavick, Paul Thomas, Ignacio Tinoco, Melvin Walker, Douglas Wayman, Christine Weber, Richard White, Michael Wiseman, Joe Yeaton

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- Phase 2:** Richard Bender - Chair, Guitty Azarpay, James Brown, Theodore Cohn, Fred Collignon, Sheila Dickie, Vincent Duckles, Ron Eggherman, Pamela Fastabend, Joseph Gates, Randolph Girard, John A. Graham, Eugene Hammel, Colin Hasse, Sami Hassid, David Herod, Sanford Hirshen, Allison Howard, Grace Katagiri, Hildegard Klee, Dorothy Koenig, Richard Lemmon, Bruce Miller, Jane Moorman, Kim Oakes, Nello Pace, George Pimentel, Thomas Reynolds, William Simmons, Claude Stoller, Cathy Tassan, Robert Tetlow, M. J. Tyler, Bonnie Wade, Brian Wall, William Wang, Rod Watanabe, Arthur Waugh, Sally Woodbridge, Gary Zachary

Precinct Four: HUMANITIES AND SOCIAL SCIENCES

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- Phase 2: Anne Kilmer - Chair, Arthur Askins, Robert Bellah, Leo Bersani, William Bouwsma, George Break, James Briggs, Michael Buckland, Nancy Caputo, Earl Cheit, Kimberly Davis, Virginia Douglas, Charles Fillmore, Claude Fischer, Myrna Flores, Alyce Foley, Donald Friedman, Yolanda George, Stephen Glickman, Robert Goldman, Empe Grant, Marcia Herndon, Richard Hutton, Jane Kaneko, Peter Kerner, Donald Kosovac, Todd LaPorte, James Larson, Paul Lee, Leonard Lesko, Christopher Lussier, Donald Mastronarde, Winifred McLeod, William Muir, William Nestrick, Johanna Nichols, Loren Partridge, Nicholas Perella, Ralph Rader, Jeffrey Riegel, Carl Rosberg, Beverly Russell, Patricia Seawell, Hinrich Seeba, Sally Senior, William Shack, Hans Sluga, Martin Trow, Mark Westlye, Victoria Williams, Todd Willy, Robert Wilson

Precinct Five: AGRICULTURE AND LIFE SCIENCES

- Phase 1: Tom Alexander, William Allen, Richard Bailey, Peter Berck, Madelynn Bjorndahl, Richard Brand, Frederick Carpenter, Robert Cooper, Gerry Corazza, Antone Costa, Kenneth DeOme, Don Erman, Lois Farrell, Ken Faunce, Roger Frye, Cathy Gordon, Harrison Gough, Lora Graham, Allison Howard, Nobuo Inouye, Tim Jackson, Rheem Jarrett, Esther Johnson, Henry Johnson, Esther Laine, Annie Lewis, William Lidicker, Richard Malkin, Derek Maskell, Paul Omelich, Robert Ornduff, Ken Owen, Verona Owen, Nick Parlette, Andris Peterson, Suzanne Qualls, Maxwell Redfearn, Ray Schneider, Russell Sell, Alan Smith, Edward Stone, Katherine Stewart, Edward Sylvester, Weyland Vedros, Albert Weinhold
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### MUSEUMS, EXHIBITS AND SPECIAL COLLECTIONS

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### ANIMAL FACILITIES

Kenneth DeOme, Stewart Madin - Chairs, Phyllis Blair, Phyllis Dolhinow, Joseph Gates, Joseph Hancock, A. Dobie Jenkins, George McKray, Charles Nicoll, Clarence Weinman, Irving Zucker

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*[University of California, Berkeley, Buildings & Campus Development Committee]*

**≡ The Berkeley Campus Space Plan  
The I&R Component of the Long Range Development Plan  
University of California at Berkeley**

**// 1981-82 Supplement //**

October 1981

## 1981-82 SUPPLEMENT TO THE I&R COMPONENT OF THE LONG-RANGE DEVELOPMENT PLAN FOR THE BERKELEY CAMPUS

With the completion of the I&R component of the Long Range Development Plan for the Berkeley Campus we are inaugurating with this supplement the yearly amendment process to maintain the Plan as a dynamic, living program in which the initial volume remains as a reference base for all actions to be taken in ensuing years. The amendments, therefore, reveal the plan of action for new projects, new requests--in essence--a rolling, five-year type of projection of physical activity with priorities indicated for the long, continuous and massive renovation and updating of the physical facilities of the Berkeley campus in order that we can have an optimal environment for conducting our functions of teaching, research, and public service. A brief statement regarding the I&R component of the Long Range Development Plan is in order. It is important to note the basis on which the Plan was developed. The statements in the section on Background and Organization reveal the intense activity over a one-year period of probably close to 1,000 people on this campus. The credits indicated in the end of the volume give names of specific committees and groups that worked in the development of the inventory documents as well as the final Plan. To a perceptive academic it would be most obvious that this I&R component of the Long Range Development Plan will do more than specify the physical activities to be followed in the near future. The Plan actually can be looked upon as a form of academic plan where resource priorities indicate those areas in which the faculty and the administration feel that greater emphasis must be made at Berkeley. Thus, the document is more than a simple historical statement of what has been. It has within it many clues to what we hope will come.

Approximately two years ago the Berkeley campus determined that the Biosciences problem at Berkeley must receive top

attention and would have our top priority for modifications of the physical plant. The monies that were received to study the Biosciences also indicated that a separate, high priority area should be examined, namely, the status of the Doe Library. These monies were utilized primarily for technical justification of the facilities plans for not only the Biosciences, but the Doe Library. In this supplement we are limiting our discussion to the Biosciences inasmuch as Library changes will have to wait until the completion and occupancy of the Northern Regional Library Storage Facility.

In essence, the Berkeley campus utilized a three-pronged approach to carry out intensive examination of not only the entire campus (the development of the I&R component of the Long Range Development Plan and our Space Plan as demanded by budgetary language), but separately, an intense faculty effort to develop the academic justification which could lead to a documented Project Planning Guide indicating the specific needs for the entire area known as Biosciences at the Berkeley campus. This effort, consisting of a variety of task forces, involved all faculty in the Biosciences area with approximately forty faculty in the main task forces directed by a steering committee of five. Numerous reports, documents, and review procedures were completed during a two-year period; and a Project Planning Guide developed. It is this Project Planning Guide which has our highest priority, and it is the key to our first supplement to the Campus Space Plan.

The third effort involved technical justification; and here the campus utilized the services of the firm of Kaplan/McLaughlin/Diaz which under contract studied a variety of options for meeting the changing needs in the Biosciences and checked on the technical and code deficiencies of the various buildings in question. Thus, we had a separate input which was utilized in the development of the Project Planning Guide, the key document for 1981-82, and we had the completed Campus Space Plan.

Immediately the question arises as to how the Biosciences Project Planning Guide relates to the Campus Space Plan. First, the Project Planning Guide calls for an increase in the I&R capacity space on this campus. To accommodate that increase the campus has developed a plan for the removal of more of the temporary buildings and together with the square footage still justifiable by the present restudy standards come close to accommodating the full increase. The next increase is less than one percent of the restudy standards capacity space for instruction and research.

In addition, in moving forward on the Plan to accommodate the Biosciences within our present constraints without disrupting ongoing academic programs, we are petitioning for a modest amount of surge space of 100,000 square feet for the whole campus. This surge space is needed so that in the near future we can decant buildings, beginning with those on the west end of the campus which are primarily in the Biosciences area or adjacent disciplines, in order to carry out necessary code corrections and renovations which must be done for safety reasons and also upgrade the facilities for our instruction and research program. Figure Two indicates the square footage in detail, and Figure Three indicates those buildings which are to be removed in the first phase of demolition.

The question could be raised as to the past record of the campus in removing structures which are obsolete in nature and/or unsafe. A listing of buildings that were slated for removal in the 1962 Long Range Development Plan and which were within the campus boundaries would include the Astronomy Observatory, the Band Building, the Cafeteria, the Chemistry Annex, the temporary buildings at Cowell Hospital, the Crocker Laboratory, the Decorative Art Annex, the Freshman Chemistry Lab, the Mechanics Building, and temporary buildings 1, 2, 3, 10, and 22. The only buildings listed for removal in the 1962 Long-Range Development Plan which now are to be retained are North Gate Hall, the

Art Gallery, and the Naval Architecture building. The latter is on the National Register of Historic Places and North Gate Hall has been nominated for it. Thus, the campus has a good track record of living up to its demolition program. One can see that in an overall sense the Biosciences Program can be accommodated within a very small percentage of the currently calculated capacity space for the Berkeley campus. Further, with the addition of surge space we would be able to move ahead with a logical and timely program of renovating completely individual buildings through the process of decanting the present occupants, carrying out the necessary construction and renovation, and returning the occupants to the rehabilitated building.

The next question that may arise in examining this proposal is whether we are concentrating on renovating buildings that are well along in age and do, in fact, have a variety of deficiencies, both programmatic and in terms of code corrections and safety. Figures Four, Five, and Six address this problem with Figure Four indicating the age profile of buildings on the campus and the last Figures indicating the evaluation of 71 buildings and five academic precincts in terms of program suitability, fire and life safety, structural safety, utility availability, handicapped accessibility, and maintenance. The Life Sciences Building is rated very poorly in the weighted building rating we have constructed, and one also can see that a variety of buildings in the Biosciences/Agricultural Sciences complex are also in the poor category. Thus, the Biosciences PPG not only will have a beneficial impact on programmatic suitability, but also will solve a large number of code correction problems.

With momentum gained by the massive effort to obtain a Berkeley Campus Space Plan, we expect in the near future to carry out a reassessment of all space standards and needs based on detailed data to be gathered in a fashion similar to that which was carried out for the Biosciences. We are prepared at some point to propose a com-

pletely revised set of standards, taking into account whether they overstate or understate the needs at the particular time. Standards developed in a growth era have questionable value at the present time for this mature campus. It is obvious to many of us who work on the campus that greater flexibility is required if we are to maintain our position of excellence. A second effort will be made on those areas of capital development which are most pressing in terms of programmatic need as well as code corrections. It could well be that the Physical Sciences, Engineering and Architecture will be examined next, together with a selected number of non-capacity space needs such as Student Services. Ways to relieve the overcrowding in the spaces occupied by units in the Humanities and Social Sciences will also be explored. Completion of the above program essentially would lay out a program for campus development over a ten-year period. Hopefully the bulk of the worst conditions will be corrected.

Throughout all of the analytical work carried out during the past year in the development of the I&R component of the Berkeley Campus Space Plan, all participants were well aware of the financial difficulties facing the nation and the State and that funding for capital development must come from many sources. The Berkeley campus has a history of obtaining funds for buildings from private sources--most recently the Bechtel Engineering Center. Many people are unaware that the campus has within its boundaries a number of buildings used for instruction and research which were privately funded, and furthermore, most recently following World War II large fractions of the costs of specific buildings in the sciences and the professions were aided by large-scale funding from the federal government. The campus has pledged to participate actively in fund-raising campaigns for the various components as they are made part of the detailed Campus Space Plan. In this the first component, the Biosciences problem, we fully expect to be active in raising non-State funds to ensure the successful completion of the entire project.

**BIOLOGICAL SCIENCES CONSTRUCTION AND ALTERATIONS**  
**IN THE CONTEXT OF**  
**THE BERKELEY CAMPUS SPACE PLAN 1981**

**OBJECTIVE:**

ACADEMIC  
JUSTIFICATION

TECHNICAL  
JUSTIFICATION

CONTEXT OF  
CAMPUS NEEDS



**MAIN  
DOCUMENT:**

PPG  
BUILDING SCIENCES  
JULY 1981

FACILITIES PLAN  
FOR THE BIO-SCIENCES  
JULY 1981

THE BERKELEY  
CAMPUS  
SPACE PLAN 1981



**BY:**

FACULTY COMMITTEES  
AND  
CAMPUS  
ADMINISTRATION

KAPLAN/McLAUGHLIN  
/DIAZ  
SAN FRANCISCO

FACULTY AND STAFF  
ORGANIZED BY BCDC



**SUPPORT  
DOCUMENTS:**

DEPARTMENTAL  
REPORTS

APPENDED  
MATERIAL

5 PHASE 1 PRECINCT  
REPORTS  
5 PHASE 2 PRECINCT  
REPORTS

# BIOLOGICAL SCIENCES CONSTRUCTION AND ALTERATIONS

## FIRST STAGE OF IMPLEMENTATION OF THE CAMPUS SPACE PLAN PROJECTS

### IMPACT ON TOTAL CAMPUS I & R SPACE

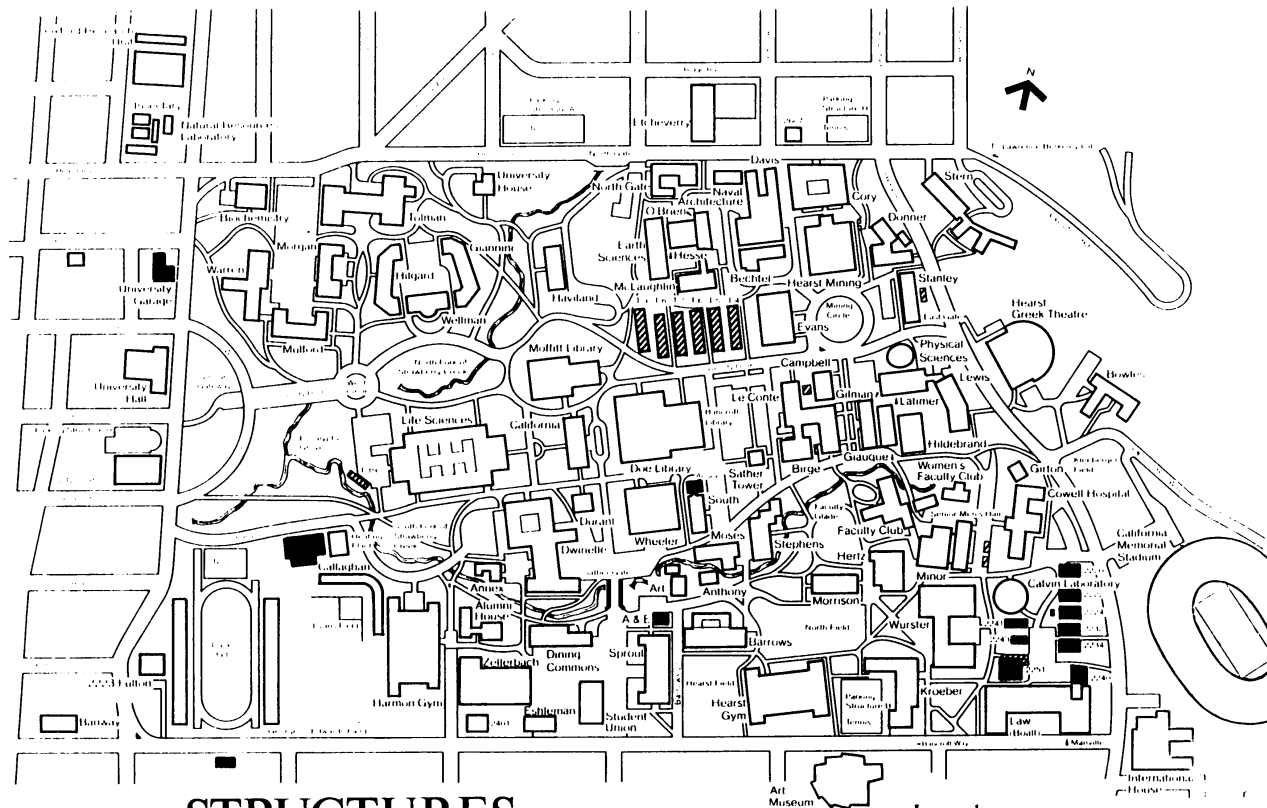
#### SPACE INCREASE COMPUTATION

|                            | ASF             | ASF            |
|----------------------------|-----------------|----------------|
| GENETICS AND PLANT BIOLOGY |                 | 105,190        |
| ORGANISMAL BIOLOGY (LSB)   |                 | <u>120,258</u> |
| TOTAL NEW CONSTRUCTION     |                 | 225,448        |
| LSB RENOVATION:            |                 |                |
| EXISTING SPACE             | 254,787         |                |
| AFTER RENOVATION           | <u>-220,000</u> |                |
| REDUCTION IN ASF           |                 | <u>-34,787</u> |
| NET INCREASE IN ASF        |                 | 190,661        |

ENTIRELY JUSTIFIED AS SHOWN IN PPG

#### ELEMENTS OF JUSTIFICATION

|                                                                     | ASF               | ASF            |
|---------------------------------------------------------------------|-------------------|----------------|
| CAMPUS I & R TOTAL<br>1981-82 (p. 49)                               |                   |                |
| NEEDED                                                              | 2,212,897         |                |
| ACTUAL                                                              | <u>-2,149,493</u> |                |
| BALANCE TO REACH 100%<br>OF RE-STUDY STANDARDS                      |                   | 63,404         |
| STRUCTURES TO BE<br>REMOVED (STEP 1, p.184)<br>(TOTAL ASF = 58,000) |                   |                |
| I & R ASF ONLY                                                      |                   | 19,256         |
| SURGE SPACE                                                         |                   | <u>100,000</u> |
|                                                                     |                   | 182,660        |



## STRUCTURES TO BE REMOVED

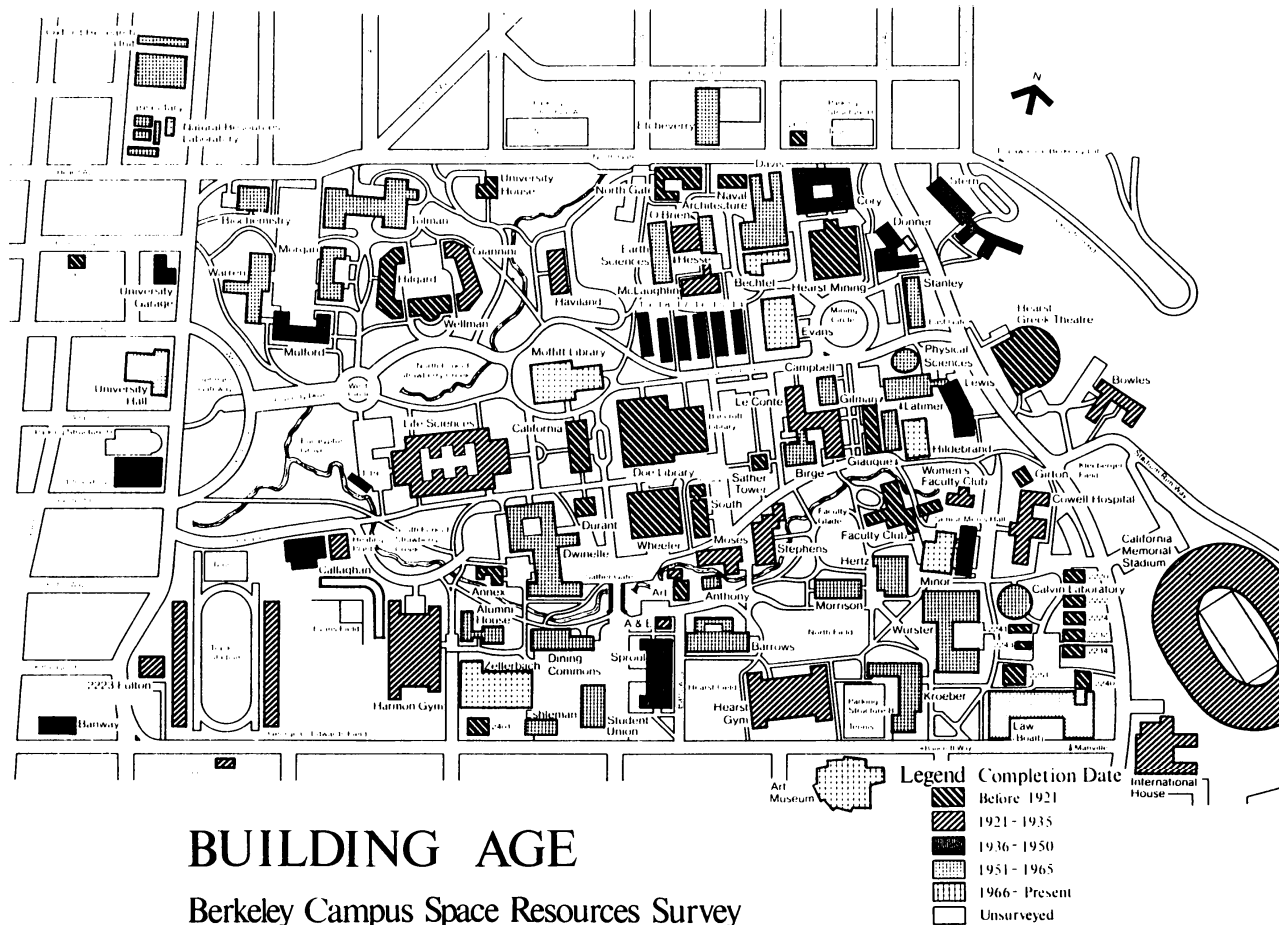
Berkeley Campus Space Plan

### Legend

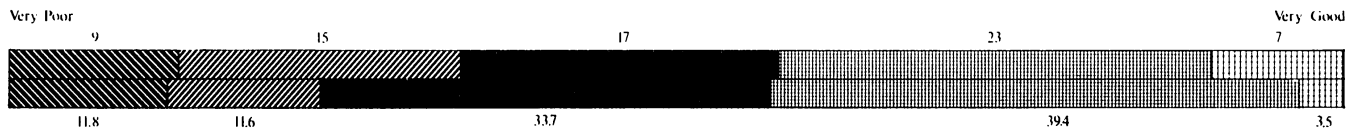
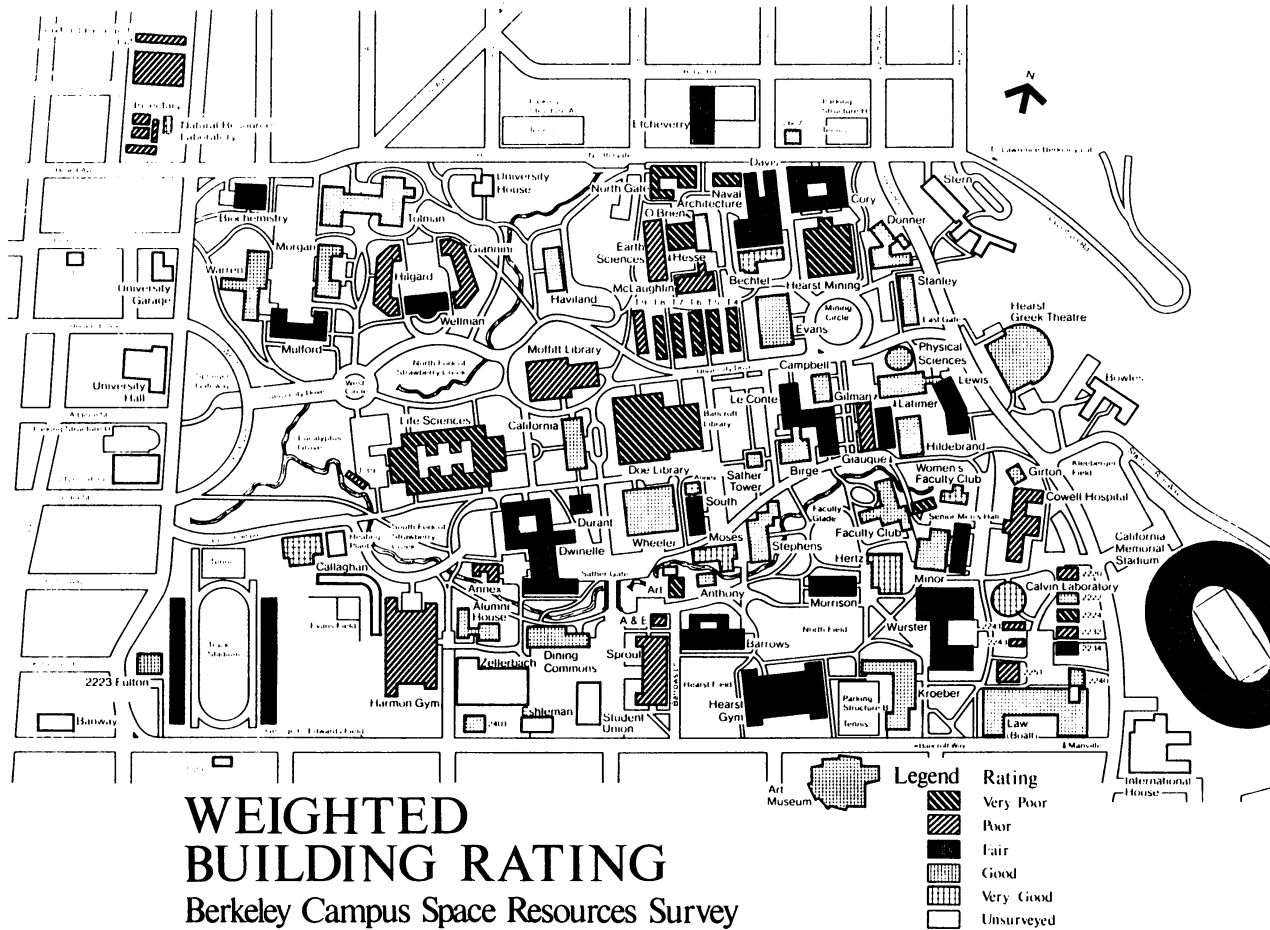
 Structures to be removed

 Structures to be removed when necessary

|                                        | ASF           | OGSF          |
|----------------------------------------|---------------|---------------|
| FIRST PHASE: TO BE REMOVED             | 58,000        | 78,000        |
| FUTURE PHASES: TO BE REMOVED AS NEEDED | <u>69,000</u> | <u>94,000</u> |
| TOTAL                                  | 127,000       | 172,000       |



71 BUILDINGS  
% OGSF



71 BUILDINGS  
% OGSF

# EVALUATION OF 71 BUILDINGS IN FIVE ACADEMIC PRECINCTS

## PROGRAM SUITABILITY



71 BUILDINGS  
% OGSF

## FIRE AND LIFE SAFETY



71 BUILDINGS  
% OGSF

## STRUCTURAL SAFETY



71 BUILDINGS  
% OGSF

## BUILDING UTILITIES



71 BUILDINGS  
% OGSF

## BUILDING ACCESSIBILITY



71 BUILDINGS  
% OGSF

## BUILDING MAINTENANCE



71 BUILDINGS  
% OGSF

249907