

UNIVERSITY OF MINNESOTA

MINNEAPOLIS, MINNESOTA

A Narrative Description  
Including an Architectural Program  
with Space Schedules

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## ABSTRACT

This application seeks funds to construct Phase I, Step I, Unit A of the Health Sciences Capital Development Program at the University of Minnesota. The Health Sciences program has been divided into two phases of development. The first makes provisions for facility need of existing programs and planned changes during the next 10 years. The second envisions possibilities for future development through the 1980's. Most important of the programmatic changes is the closer integration of all Health Sciences programs. The facilities are planned to support this integration and to take into account technological developments and changes in teaching, research and health care techniques as well as provide facilities for an increasing number of health profession personnel. Detailed planning documents are now being developed for all of Phase I.

Incorporated with the Capital Development Program is expansion in the Medical School class from 163 to 203 and the Dental School class from 115 to 150 with accompanying expansion of enrollments in related programs.

Unit A is a 20-floor structure containing new facilities to support most of the Dental School programs and some programs in the Schools of Medicine and Public Health. In addition, it will include shared classrooms, auditoria, and basic science teaching laboratories to serve all units of the Health Sciences. These new areas will permit the earliest possible expansion of enrollments, and will free existing space to be remodeled in the next two steps to serve other programs.

The decision to undertake the project was the result of University, State and public dedication to the vital need to provide Minnesota and the Upper Mid-west the highest quality Health Science training and service possible. Innovations in teaching methods, technological changes and advances, expanded enrollments, limitations imposed by current space and facilities all produced the urgent need to renovate and expand the Health Science facilities.

The long-range master plan of the Health Sciences at the University of Minnesota is part of an emerging master plan for the whole University. This plan envisions enrollments of approximately 75,000 persons for the University system and 60,000 persons on the Twin Cities Campus. In accordance with the goals established by the Higher Education Coordinating Commission, the University's enrollment structure in the Twin Cities is moving toward 1/3 lower division, 1/3 upper division and 1/3 graduate and post-baccalaureate professional.

The dollar magnitude of the current plan is approximately \$40 million of which \$28 million is for actual construction. Of this total construction figure \$5.8 million is for the Medical School, \$19.2 million is for the School of Dentistry, and \$3 million is for the School of Public Health. The shared facilities are divided proportionately.

## PART ONE

### Section A Background

#### 1. Short history of the University

The University of Minnesota is the State and Land-Grant University of the State of Minnesota. Founded in 1851 by the Territorial Legislature, it enrolled in excess of 47,500 students in Fall 1968 on four campuses in the Twin Cities (St. Paul and Minneapolis), Duluth, Morris, and Crookston. Through an affiliate arrangement with the Mayo Foundation, 614 graduate medical students were receiving training in Rochester.

The University is the only institution in the State offering the Ph.D. degree. It also offers the only programs in many professional areas including medicine, public health, dentistry, pharmacy, engineering, and agriculture; all of which are located on the main campus in the Twin Cities. Offerings in almost all important disciplines are found on this campus, where approximately 41,000 students enrolled in the Fall 1968.

## PART ONE

### Section A Background

#### 3. Justification and Need

For more than five years the faculties of the University of Minnesota Health Sciences have carefully considered objectives and programs for the future. The plan for physical development results from this collective effort. The Health Sciences Center must be expanded and developed physically in order to meet the academic, patient-care and other service objectives. The primary goal of Master Planning for the Center is to provide an orderly and flexible framework for growth for the next twenty years and beyond through new construction and development for the existing complex.

The Health Sciences Center is responsive to the health needs of the state. This program is designed to meet the state needs of increased health manpower, provide for closer cooperative arrangements among members of the health science team, and provide the patient easy access to the comprehensive specialty-referral health care system.

Concurrent with the internal University effort the Hill Family Foundation, at the request of the University Board of Regents, sponsored a comprehensive health manpower study for the upper Midwest. The principal recommendations of this study made available in June, 1966, called for expansion in entering classes for the University Medical and Dental Schools at the earliest possible date.

Architectural planning began in fall 1967 supported by a \$500,000 appropriation from the State Legislature. In addition to the detailed program described in this application the architectural team was asked to provide physical master plans for Health Science programs through the mid 1980's.

PART ONE

Section A, Background

4. Describe present facilities and deficiencies in the facility which preclude expansion of enrollment and which may curtail enrollment or quality of instruction.

The Health Sciences Center includes the following facilities:

- Jackson Hall
- Lyon Laboratory
- Millard Hall
- Owre Hall
- Mayo Memorial Building
- Health Service
- Children's Rehabilitation Center
- University Hospitals
- Variety Club Heart Hospital
- Diehl Hall
- VFW Cancer Research Center
- Masonic Memorial Hospital
- Powell Hall

These total approximately 1,180,000 net square feet. Most of these facilities are capable of several more decades of effective service to educational programs. To obtain maximum effectiveness, however, we must modify and improve the use of existing space as well as to add additional floor area. Growth in enrollment and modification in manifold teaching, research, and service activities in the past years have placed excessive strain on existing facilities. The adaptation of buildings poorly designed for programs which they now serve has resulted in considerable inefficiency in operation and management. Most notable are those related to access and circulation. This is particularly evident within the present facilities as it affects the movement of students, faculty, staff, patients, and supplies.

Other problems exist because the total space is inadequate to accommodate staff and equipment essential to the operation of Health Sciences programs. The resultant overcrowding virtually eliminates the flexibility required for adaptation of the rapidly changing procedures and methods of instruction and learning in these fields.

## PART ONE

### Section A Background

7. Briefly describe the planning process involved in this project, including such things as student, faculty involvement, etc.

Planning for the program under consideration has been underway for more than a decade. The detailed coordinated effort began in late 1964 with the appointment of a Health Sciences Planning Committee. This Committee included administrators from central administration, the Dean of the College of Medical Sciences, Deans from the Schools of Dentistry, Pharmacy and Veterinary Medicine, the Director of Hospitals and members of the faculty.

For eighteen months the Committee, assisted by six sub-committees concentrated upon definition of roles, objectives and programs of all the Health Sciences units. In mid 1966, attention turned to methods and resource requirements needed to implement the programmatic plans.

Concurrent with the internal University effort, the Hill Family Foundation, at the request of the University Board of Regents, sponsored a comprehensive health manpower study for the upper Midwest. The principal recommendations of this study, made available in June, 1966, called for expansion in entering classes for the University Medical and Dental Schools at the earliest possible date.

Acting upon the Hill Family Foundation recommendations and the preliminary report of the Health Sciences Planning Committee, the Board of Regents proposed an expansion of the physical facilities which were considered essential to the maintenance of quality programs in the Health Sciences.

In addition, it would make possible the introduction of new programs and the recommended increases in enrollments. Entering classes in Medicine would be increased from 163 to 203 and Dentistry from 115 to 150. There would also be proportionate enrollment increases in related health professional programs.

The Regents requested, from the 1967 Legislature, \$650,000 to purchase land required for physical expansion and \$500,000 to finance preliminary physical planning. This request was granted, and a Design Coordinating Committee was appointed. An architectural team was also selected to work with the Committee to develop a physical master plan to serve the Health Sciences programs through the mid 1980's.

Specific goals established for the architects included:

- a) Expansion to serve increased enrollments in Medicine, Dentistry and other related programs.
- b) Improvement and conservation of existing facilities
- c) A physical arrangement that supports and encourages interaction among Health Sciences units and between all of the units and the entire University.
- d) Flexibility in planning to adapt to future program changes.
- e) Provision for expansion to accommodate future needs.



These goals had to be met within the context of total University planning. As this work proceeded, thirteen additional special sub-committees were formed to assist the Coordinating Committee and the architects. In the planning process to date, more than 150 faculty members have participated. A listing of all the Committees is included in an appendix.

## PART ONE

### Section B, Community Relationships

The University's main campus is located near the geographic center of the Twin Cities metropolitan area. Population in the seven-county area exceeds 1.7 million persons, about 55% of the State's total. Electronics is the major industry in a diversified economy. Food processing, advertising, banking, wholesaling and transportation are other major forms of economic activity. Commercial interests of the Twin Cities serve the needs of agriculture and industry throughout the Ninth Federal Reserve District.

While the level of economic activity in the metropolitan area is high, the relatively great importance of agriculture and mining in the State's economy results in a per capita personal income slightly lower than the U.S. average. Levels of health care are generally rated well above the U.S. average but general concern is expressed about declining physician-to-population and dentist-to-population ratios. There is concern also about the distribution of physicians and **dentists** in the more sparsely settled rural areas.

Population is growing in the metropolitan areas but, as is the case in most states, it is declining in the core cities. It also is declining in many of the more rural counties. Because of its leadership position in higher education, the University has special opportunities and responsibilities to work on many problems including delivery of health care in both rural and urban settings.

Throughout the entire planning process representative groups of the metropolitan and out-state areas have been appraised of the program and intentions. Copies of preliminary plan reports were distributed and continuing information is given to interested parties such as the city council, metropolitan council, neighborhood organization groups, and the University Community Development Corporation.

Perhaps most significant was the Regents request prior to any of the planning for a comprehensive study of the Health Manpower needs of the region. The advisory committee held extensive consultations with appropriate representatives of the community.

## PART ONE

### Section C Organizational Structure

#### 1. Organizational Structure

The University is governed by a Board of twelve Regents elected for six year terms by the State Legislature. By tradition, eight of the Regents are elected from Congressional Districts and four are elected on an at large capacity. The Regents of the University of Minnesota are by constitutional definition (reaffirmed by court decision) an autonomous body. Responsibility for academic materials has been directed by the Board of Regents to the respective collegiate faculties with all University materials in this area managed through a representative elected senate of faculty and students.

The President of the Board of Regents is also the chancellor of the University. Under his authority are five vice presidents with responsibilities as follows: Administration, Academic Administration, Business Administration, Educational Relationships and Development, and Student Affairs. In this structure the office of the Vice President for Academic Administration assumes central importance for administration of collegiate units. The administrative offices of collegiate units do, however, report directly to the other four vice presidents in matters relating to their area of responsibility.

The College of Medical Sciences, the School of Dentistry, the College of Pharmacy, and the College of Veterinary Medicine comprise the Health Sciences on the Twin Cities campus of the University of Minnesota. Within the College of Medical Sciences are four administrative units: Medical School, School of Public Health, School of Nursing, University Hospitals. Since 1968 the chief administration of each of these units including the sub-units of the College of Medical Sciences have been recognized by the Board of Regents as a Council of Health Science Deans and Directors. This Council serves as the coordinating mechanism of programs in all health science units.

SECTION D FUTURE PHASED PROJECTS - PHASE I

FUNCTION	STEP 2						STEP 3	
	UNIT B	UNIT C	UNIT D	UNIT E	UNIT F	REMODELING	REMODELING	UNIT L
	DEPARTMENTAL OFFICES AND RESEARCH DEPARTMENTS	OUTPATIENT CLINICS - DIAGNOSTIC RADIOLOGY PATIENT CARE MEDICINE AND PEDIATRICS -EXPANSION OF OPERATING ROOMS	RADIO THERAPY FACILITIES	HEALTH SCIENCES RECEIVING STORAGE FOOD PREPARATION AND CAFETERIA	COLLEGE OF PHARMACY	PUBLIC HEALTH ANIMAL QUARTERS EXPANSION	SCHOOL OF NURSING BASIC SCIENCES CLIN. DEPT. EXP. HOSPITAL DEPT. EXPANSION ANIMAL QUARTERS PUBLIC HEALTH	LEARNING RESOURCES CENTER
ESTIMATED APPLICATION DATE	MARCH 70	JULY 71	NOVEMBER 71			NOV. 71	JULY 73	JULY 73
ESTIMATED CONSTRUCTION COMPLETION	MAY 1974		MAY 73	OCT. 1973	FEB. 74	SEPT. 72	SEPT. 1975	SEPT. 1975
ESTIMATED BREAKDOWN OF PROJECT BETWEEN FUNDING SOURCES	HILL BURTON HEALTH MANPWR ALLIED HEALTH HRF	(UNITS B & C) (UNITS B & C) (UNIT C) (UNIT B)	HILL BURTON HEALTH MANPOWER HRF	HILL BURTON HEALTH MANPOWER	HEALTH MANPOWER	PUBLIC HEALTH HRF	HEALTH MANPOWER HRF NURSING ALLIED HEALTH	HEALTH MANPOWER
TOTALS	\$ 32,985,240		\$311,680	\$6,086,760	\$8,976,000	\$2,452,620	\$8,106,480	\$3,078,000

PART ONE

Section D Future Phased Projects

UNIVERSITY OF MINNESOTA HEALTH SCIENCES EXPANSION

ESTIMATED DOLLAR MAGNITUDE OF CURRENT STEP 1 PLAN

624,938 SFG = \$ 37,496,280

ESTIMATED DOLLAR MAGNITUDE OF REMAINDER OF PHASE I  
(INCLUDES STEPS 2 AND 3)

UNITS B & C 549,754 SFG = \$ 32,985,240

D 13,528 SFG = \$ 811,680

E 101,446 SFG = \$ 6,086,760

F 149,600 SFG = \$ 8,976,000

REMODELING 351,970 SFN = \$ 10,559,100

L (LEARNING  
RESOURCES  
CENTER) 51,300 SFG = \$ 3,078,000

TOTAL PHASE I \$ 99,993,060

TAC JUNE 25, 1969

PART ONE

THE ARCHITECTS COLLABORATIVE INC.



Section D Future Phased Projects

JEAN B. FLETCHER  
1945 — 1965  
NORMAN FLETCHER  
WALTER GROPIUS  
JOHN C. HARKNESS  
SARAH P. HARKNESS  
LOUIS A. MCMILLEN

RICHARD BROOKER  
ALEX CVIJANOVIĆ  
HERBERT GALLAGHER  
WILLIAM J. GEDDIS  
ROLAND KLUVER  
PETER W. MORTON  
H. MORSE PAYNE, JR.  
ERNEST L. BIRDSALL  
TREASURER

26 June 1969

Bureau of Health Manpower  
United States Public Health Service  
Bethesda, Maryland

Subject: University of Minnesota  
Health Services Expansion

Gentlemen:

The purpose of this letter is to provide information on the architects' methods of cost estimating for the above referenced project.

Since drawings are presently in the Schematic Design phase, detailed trade takeoff methods of estimating have not been attempted. Instead, square foot cost factors have been used; however, every attempt has been made to insure reliability of the assumptions employed.

Records of bid prices have been obtained on recent University projects having similar functions to those of the Health Sciences. These prices have been converted to gross square foot costs and adjusted where necessary for differences such as sub-soil conditions, special finishes, etc.

Each of the unit prices were then escalated from the time of actual bid to the expected bid date of the project in question, now estimated to be March, 1971. The projects used were the Space Science Center (bid early 1966), New Chemistry Building (bid early 1968) and the Veterinary Science Building (bid early 1969).

Using the Twin Cities Engineering News Record escalation index for the respective intervening times, and using actual non-building costs (fees, equipment, testing, supervision, etc.) where known and 33-1/3% of construction cost where not known, we arrived at total project cost units of \$62.56/GSF, \$69.87/GSF, and \$59.38/GSF respectively. From this information, it was decided to select \$60.00/GSF as total project cost and \$45.00/GSF as construction cost, including

Bureau of Health Manpower

26 June 1969

page two

fixed equipment for March 1971 bidding. If the project is delayed additional escalation will be applied. Likewise for subsequent portions of the project, added escalation will be applied when conditions are more accurately predictable. (It is understood that all associated costs such as fixed and movable equipment, furnishings, etc. will be tabulated and estimated to the extent possible for the Grant Application.)

Architectural fees are calculated on the basis of the standard owner-architect agreement used by the Regents of the University of Minnesota. The actual fee percentage is that recommended by the Minnesota State AIA less 1% for the University-provided supervision services.

Very truly yours,

THE ARCHITECTS COLLABORATIVE Inc.



Roland Kluver

RK/tjt

PART ONE

Section D Future Phased Projects

SUMMARY OF PROPOSED HEALTH SCIENCES NET EXPANSION AREAS THROUGH 1975  
PHASE I

	<u>Existing Net S.F. 1968</u>	<u>Total Net S.F. 1975</u>
AMBULATORY CARE	-	8,780
BASIC SCIENCES	160,495	253,100
BIOMEDICAL LIBRARY	72,075	72,075
CLINICAL TEACHING & RESEARCH	239,355	365,555
CONTINUATION EDUCATION	1,185	2,500
SCHOOL OF DENTISTRY	63,190	200,050
MAYO GARAGE	83,067	48,212
UNIVERSITY HOSPITAL	350,024	486,340
ADMINISTRATIVE AND OTHER SPACE	49,831	57,376
NEW ANCILLIARY DEPARTMENTS	-	10,000
ON-CALL QUARTERS	16,848	16,848
OUTPATIENTS DEPARTMENT	25,439	84,115
SCHOOL OF NURSING	12,482	32,500
SCHOOL OF PUBLIC HEALTH	40,520	83,180
SCIENTIFIC APPARATUS	6,699	11,700
STUDENT HOUSING	51,067	-
SHARED CLASSROOMS	13,369	45,200
COLLEGE OF PHARMACY	- *	79,578
HEALTH SCIENCES ADMINISTRATION	-	4,670
EDUCATIONAL RESOURCES CENTER	-	30,000
 TOTAL	 1,185,646	 1,891,779

\* EXISTING SPACE NOW USED BY COLLEGE OF PHARMACY IN APPLEBY HALL IS NOT INCLUDED AS PART OF HEALTH SCIENCES EXISTING SPACE.



PART ONE

Section D Future Phased Projects

Learning Resources Center

At this stage of planning it has not been determined whether the Learning Resources Center should be a single facility or dispersed throughout the complex as a series of sub-centers. Step I makes some provision for this activity and it is located on the 16th floor of Unit A.

Additional programmatic planning which will be related to proposed curriculum changes together with further architectural study will determine its final form.

PART ONE

Section J, Availability of Patients

1. Describe the source and the adequacy of patients for teaching purposes.

By policy of the Board of Regents, patients at the University of Minnesota Hospitals are admitted and treated by referral from their own physicians only. Certain exceptions to this policy have been made for specified groups such as Community-University Health Care Center, Obstetrics patients, and Family Practice. Patients come in equal numbers from the twin cities metropolitan area and the rest of the state. Many of the non-private patients have formerly been funded by the progressive welfare programs of the State of Minnesota. With the introduction of Medicare and Medicaid we have found no major shift in types of patients, but rather a shift in source of funding from state/county welfare to these federally sponsored programs.

While the present patient population is adequate for the training of the existing student load, additional students as well as new programs referred to elsewhere will require increasing numbers of patients. To this end other sources of patients are being considered and the strict referral policy is now undergoing review.

2. Provide current and projected figures for numbers of inpatients, outpatients.

Outpatients in fiscal 1968 made 113,000 visits to the University Hospitals. During fiscal 1969 this number had increased to 120,000. By 1973 we anticipate on the order of 190,000 although the new clinics are projected to accommodate 250,000 without major expansion. It is the intention of the University Health Sciences to provide more and more services on an ambulatory basis and organize them in such a way as to be efficient for teaching purposes.

It will also be important to expand the outpatient load to provide the base for an increased inpatient census. Inpatient days in fiscal 1968 totaled 230,000 and are expected to reach 275,000 to 280,000 by 1973.

## PART ONE

### Section K Health Science Library

#### 1. Library facilities

The Bio-Medical Library serves the College of Medical Sciences, which includes the Medical School, the School of Public Health, School of Nursing, and the University Hospitals; the School of Dentistry; the Minneapolis Campus of the College of Biological Sciences; and users of biological and medical library materials within the University as a whole. The Library encompasses, therefore, the entire range of the health sciences and contains strong supporting collections in the biological sciences as well. This has provided an enlarged resource for each of the fields or disciplines served by the Library. The School of Dentistry, like most of the other units, maintains a working library collection within the school, but in addition depends heavily on the total library resources for its own and related fields for in depth coverage of the literature.

The Library is conveniently located and accessible for all health science users. It occupies four floors in Diehl Hall, a multipurpose building adjacent to the Health Sciences complex and connected to it by tunnel. Two floors of the Library were completed in 1960, and two additional floors were added in 1964. The total amount of floor space allocated for library purposes is 82,901 square feet exclusive of mechanical equipment rooms. This provides seating space for about 750 readers and a shelving capacity of approximately 250,000 volumes. There is space for growth of the collection until 1974 or 1975. By that time the capacity will have been reached.

The collections are broad in scope, covering all fields of medicine and biology, and are designed not only to support the teaching and research needs of its many users, but also to function as the major library resource for medical and biological materials for the University and Upper Midwest. The Library now has a total of 195,000 volumes and receives approximately 3,200 serials a year of which about 2000 are current journal subscriptions. During the 1967-68 fiscal year, 10,348 volumes were added to the Library. The outstanding feature of the collection is the strength of its periodical holdings, both current and retrospective. The Library has attempted to secure complete runs of all significant medical journals, not only from this country but from throughout the world. The Library also has an excellent reference collection and a rapidly developing historical section. The Historical Collection occupies a separate facility within the Library and includes an extensive stack area, a reading room, lecture room, and offices for the staff. The collection now totals approximately 12,000 volumes and is growing steadily with funds provided entirely by private donors.

The Bio-Medical Library is part of the University Library system and can draw on all library resources within the University. These resources total approximately 2,600,000 volumes. Departmental libraries, particularly the Veterinary Medicine, Pharmacy, Entomology, and Chemistry Libraries, provide resources which supplement the Bio-Medical Library. Twice daily deliveries enable books and journals to be quickly and easily requested and delivered to and from other library units. Items which are not available on campus are usually secured either from the Mayo Clinic Library in Rochester which totals more than 100,000 volumes and with whom we have a mutual agreement to provide next day service and free photocopy, or from the Midwest Regional Medical Library located at the John Crerar Library in Chicago. Arrangements with local and state hospital

libraries enable these libraries to obtain loans or photocopy from the Bio-Medical Library. The Veterans Administration and Hennepin County hospital libraries pick-up and return materials to the Library every day; the St. Paul Ramsey hospital makes weekly pick-ups; and other local libraries make regular but unscheduled pick-ups. Hospital and medical libraires outside the Twin Cities make requests by mail. A total of 3794 requests were filled for local hospital libraries last year and 3018 for other libraries. A statewide regional medical library system is presently being considered.

The Library is open 98 hours a week and provides full service whenever open. In addition, two rooms with a seating capacity for approximately 80 students remain open 24 hours a day and provide a place to study but not access to library materials after the Library closes. Trained librarians provide a variety of reference services to users. This assistance includes locating specific information or facts, locating and borrowing materials from other libraries, verification of citations, compilation of selected bibliographies, instruction in the use of library indexes and reference books, and preparation of MEDLARS search requests. Requests for MEDLARS bibliographic searches are forwarded to the Regional Medical Library for computer processing. Interlibrary loans, which are secured for patrons if the materials is not available in the Library or on campus, are transmitted to other medical libraries via teletypewriter and are usually filled by photocopy at no charge to the patron.

Some departments served by the Bio-Medical Library maintain small working collections of texts and journals for the use of their own students and faculty. These, however, are the sole responsibility of the departments concerned.

The Bio-Medical Library has been developing computer based operations for the last two years. An automated system for handling all aspects of journal control went into operation in January 1968, and on-line operations utilizing visual display terminals are now under development. It is planned to eventually develop a fully automated system for all library operations. This would allow any user, whether within the Library or without, who has access to a terminal, to be able to determine what was in the Library for all types of materials, where the item was located, and whether or not it was available or in use. Audio visual materials would be included in this system, allowing users to have access to a unified record for all types of learning materials, both print and non-print.

The Library is also planning to develop a system to provide for remote transmission of library documents to stations outside the Library for viewing or reproduction. Under this system a patron would request a document by phone. It would then be retrieved either from a microfiche file, or from the collection and transmitted to the viewer. Original journal articles of the most heavily used journals would be microfilmed to allow instant access to the most heavily used materials. The information transmitted could be viewed or skimmed on the screen and a hard-copy print-out could be produced if desired. A grant application to the U.S. Public Health Service to begin experimental work to develop this system is now pending.

The acquisition of all new journals as well as many other duties is the responsibility of the Bio-Medical Advisory Committee: Dr. Abbe, Botany; Dr. Gorlin, Dentistry; Dr. Wallace, Zoology; Miss Fritz, Nursing; Dr. Carpenter, Basic Sciences; Drs. Mulhausen and Spink, Clinical Sciences and Dr. Anderson, Chairman, Public Health.

PART ONE

Section L University of Minnesota Hospitals

NATIONAL INSTITUTES OF HEALTH GRANT APPLICATION

University of Minnesota Hospitals

The University of Minnesota Hospitals is owned and operated by the University of Minnesota for the fulfillment of its many obligations to the state and region in health sciences education, service and research. By Board of Regents policy all patients admitted or treated at the University Hospitals are available for the clinical educational programs of all the Health Sciences. In addition to the traditional clinical programs in medicine, nursing and public health, the Hospitals has joint programs, as exemplified by formal agreement, with the School of Dentistry and the College of Pharmacy, (Appendix A).

Bearing in mind its responsibility to these educational programs as well as to the citizens of Minnesota and the Upper Midwest, the staff of the University Hospitals has defined its roles in relation to education, service, research and serving as a model to the region. A statement of roles and current objectives for University Hospitals appears in Appendix B.

University of Minnesota Hospitals, a designation which includes the Mayo Building, and Children's Rehabilitation Center, the Variety Club Heart Hospital, and the Masonic Memorial Hospital, encompasses 854 beds, 16 geographically distinct outpatient clinics, 14 operating rooms,

and almost all other services considered to be an integral part of a University teaching hospital. These facilities have been designed and developed to serve the various teaching programs currently conducted at University Hospitals. The Hospitals staff has worked particularly closely with the faculties involved in developing facilities for current new programs such as Family Practice, Pediatric Surgery, Hospitals Dentistry, Hospital Clinical Pharmacy and Experimental Nursing Organization. Many of the facilities designed in the early part of the century are now inadequate to carry on their currently designated functions, much less serve new and expanding programs.

While the replacement and expansion of hospitals departments and clinical facilities are programmed for Step II of the Development Program, considerable thought and study has been devoted to these plans already. The number of beds is projected to be between 1000 and 1020; 150 new general examination rooms in addition to specialized and emergency facilities are planned to replace the present outpatient clinics; 6 additional operating rooms are scheduled to adjoin the existing operating suite; a new post-anesthesia recovery room and new intensive care unit are included; other hospital departments will be expanded minimally in relation to their respective needs and present deficiencies. The Step II planning program for Hospitals and Clinics has been approved and supported by the Hospital Planning Councils of both Minneapolis and Saint Paul. Their report appears as Appendix C.

# Appendix A

## JOINT PROGRAM STATEMENT OF THE SCHOOL OF DENTISTRY

AND

## THE COLLEGE OF MEDICAL SCIENCES/UNIVERSITY HOSPITALS

### Introduction

The School of Dentistry recognizes the increasingly important role of the hospital in the care and management of dental patients. In turn, the University Hospitals consider it part of their role to provide a clinical environment for all of the health sciences. Undergraduate and graduate dental educational programs are conducted in the University Hospitals, community hospitals (county and private) and other state supported health centers.

The community hospitals offer undergraduate dental students an opportunity to assist in specialized oral health treatment of patients under general anesthesia, and to gain experience in emergency care of patients with acute dental infections and/or oral-facial trauma. Conjoint educational objectives with the University Hospitals relate primarily to diagnosis and treatment planning for care of the physically and/or mentally ill, and to preventive and comprehensive rehabilitative care of patients referred for specific therapy. The University Hospital setting provides an environment for interaction with a variety of health professionals not readily available in a non-university setting.

The School of Dentistry and University Hospitals also have direct relationships in fulfilling the research and service roles of the University Health Sciences. These activities relate to treatment of specific oral health diseases and to the organization of hospital dental services for their most effective utilization. This relationship imposes an obligation upon the participants to translate research findings to programmatic services. The purpose of this report is to delineate the common areas of responsibility.

### Roles

#### 1. Education

- A. To provide staff and a clinical environment for the education of undergraduate and graduate dental students and the training of para-dental personnel.
- B. To promote interdisciplinary health sciences relationships through conjoint educational, research, and service programs as a model for students.

#### 2. Service

- A. To make dental consultation available to all patients admitted to the University Hospitals, and to provide adjunctive dental treatment in support of medical, surgical and psychiatric therapy.

- B. To provide exemplary comprehensive and/or specialized ambulatory and inpatient care to patients referred to University for dental consultation and treatment.

### 3. Research

- A. To conduct applied clinical research in cooperation with other health professionals.
- B. To experiment with improvements in systems and facilities for the provision of dental care.

## Objectives

### 1. Education

- A. To prepare dental students at the undergraduate and graduate levels for their respective responsibilities in the dental care of ambulatory patients with health problems and hospital inpatients.
- B. To train dental auxiliary personnel for their role in the treatment of patients in a hospital environment.
- C. To offer continuing educational opportunities in hospital dental practice appropriate to dentists, physicians and other health professionals of the region.
- D. To integrate the teaching programs of the School of Dentistry with those of the other health sciences so as to demonstrate the health "team" concept.
- E. To review and develop new methods of teaching principles and skills of hospital dental practice.
- F. To gain maximum utilization of educational resources through the development of cooperative programs with other state, county and federally supported hospitals and private community hospitals.

### 2. Service

- A. To make efficient dental consultative service available to referring dentists and physicians.
- B. To provide exemplary comprehensive dental care to those patients specifically referred for this purpose.
- C. To cooperate in the development of dental services in hospital facilities throughout the state and region.
- D. To share meaningful oral health knowledge with health professionals and the public.



### 3. Research

- A. To advance the knowledge of dental science by investigating specific dental diseases in a hospital setting.
- B. To study medico-dental health patterns as opposed to specific dental diseases. The objective of this research will be to seek relationships between oral and systemic dysfunctions and to consider the effects of combined medical and dental treatment processes upon total health.
- C. To experiment with new systems for the accomplishment of dental services in a hospital environment. This will include investigation into the composition of the "dental team," and the relationship of such a "team" to other health professionals.
- D. To encourage interdisciplinary participation in the above research areas.

### Programs

#### Education

##### 1. Undergraduate Dentistry

Undergraduate dental students receive instruction in the basic sciences and in clinical dentistry. They also receive some exposure to physical diagnosis and laboratory medicine. There is, however, a need for more correlative experience.

##### A. Dental Clerkship Program - University Hospitals

This program is offered to third and fourth year students and includes:

- (1) An opportunity for students to broaden their understanding of the relationship of oral diseases to other systemic dysfunctions through the review of medical records, and the performance of detailed oral diagnostic procedures on hospitalized patients under supervision.
- (2) Instruction in the organizational framework of the hospital. The student will become acquainted with:
  - a. The organization of the hospital staff.
  - b. Departmental relationships and policies.
  - c. Procedures involved in patient admissions and discharges.
  - d. The function of hospital records.
- (3) Orientation and experience in the operating room including scrubbing, gowning, operating room protocol, observation of the administration of general anesthetics, and pre- and post-operative patient management.

- (4) Education in patient care on a hospital station including diet, drug and other therapeutic modalities; orders; and the technique of bedside visits (rounds). Inter-relationship with other health sciences in patient care is emphasized.
- (5) An opportunity to observe and assist in the dental treatment of ambulatory patients who are best treated in a hospital environment.
- (6) Exposure to such diagnostic and treatment services as laboratory medicine, radiology, radiation therapy, and others.

#### B. Dental Clerkship Program - Affiliate Hospitals

This is a fourth year dental student activity which includes:

- (1) An opportunity for active student participation in the treatment of dental patients under general anesthesia.
- (2) Instruction and experience in the care of patients with acute dental pathology and oral-facial trauma.

This program is offered in private community hospitals and at Hennepin County General Hospital. When University resources do permit inclusion of the foregoing educational experiences, they will supplement those of the affiliate hospitals.

- C. It is felt that the dental clerkship programs will better prepare dentists of the future to meet the total demands of "family practice."

## 2. Graduate Dentistry

### A. Hospital Residency Program

#### (1) University Hospitals

Graduate students in the clinical specialties of dentistry will each be assigned to the Hospital Dental Service. The amount of time each student will spend in this assignment will naturally depend upon the particular clinical discipline giving the training, but in each instance the purpose is to provide an opportunity for treatment of both ambulatory and hospitalized patients who have special physical or psychological problems. All graduate students will make "rounds," take "calls," participate in "Clinical Pathological Conferences," and receive instruction in administrative procedures pertinent to hospital admission, inpatient care and discharge.

#### a. Oral Surgery

Oral Surgery graduate students are assigned to the University Hospitals for one calendar year. Six months is devoted to training in anesthesiology. During this assignment students

are taught techniques in endotracheal and intravenous anesthesia, and venipuncture. Instruction is also given in selection and administration of pre- and post-anesthetic drugs, and in the management of pain. The other six months is spent in diagnosis and treatment of patients for all types of oral surgical problems.

b. Peridontics

Graduate students in Peridontics will have periodic assignments to the Hospital Dental Service. They will participate in preventive and rehabilitative clinical care of inpatients with medical, surgical or psychological complications. They will also receive instruction in operating room protocol including pre- and post-operative patient management and will treat patients under general anesthesia.

c. Prosthodontics

Graduate students in prosthodontics will receive a portion of their advanced clinical training in fixed and removable denture prosthetics in the Hospital Dental Service. During this assignment they will also participate in the treatment of patients with congenital and acquired oro-facial defects, and will receive instruction and experience in the fabrication of devices useful in therapeutic radiology.

d. Pediatric Dentistry

Pedodontic and Orthodontic graduate students will be assigned to the Hospital Dental Service for an extension of their clinical experience in the treatment of children who are physically ill or handicapped. Students will receive instruction and experience in the most advanced concepts of preventive, interceptive, and restorative clinical practice under both local and general anesthesia. These programs are conducted in cooperation with the Department of Pediatrics and the Department of Physical Medicine and Rehabilitation of the College of Medical Sciences.

e. Oral Pathology - Oral Medicine

Graduate students in oral pathology and oral medicine have an opportunity to relate local pathologic findings to systemic conditions, general pathology, and treatment patterns. Instruction and experience are offered in the application of advanced oral diagnostic procedures with emphasis on recent developments. Correlation is provided by Departments of the College of Medical Sciences.

f. Endodontics

Graduate students in endodontics will participate in the diagnosis and treatment of patients with pulpal and periapical pathology. They will receive instruction and experience in

providing therapy under general anesthesia, and in the management of complex treatment under local anesthetics.

g. Resident Dental Fellowship (Rotating)

The rotating resident dental fellowship is a 12 month graduate study program designed to increase the scope and depth of the undergraduate curriculum in general dentistry. Students will participate in all clinical areas of dental practice in a hospital environment and will receive instruction and experience in all protocols of hospital practice.

h. Biological Sciences

Graduate students with majors in other than the dental specialties, such as genetics, microbiology, physiology, anatomy, etc., will have an opportunity to relate their academic knowledge to a clinical environment.

(2) Affiliated Hospitals      Hennepin County General Hospital  
                                         Cambridge State Hospital  
                                         Veterans Administration Hospital

Graduate students in the several clinical specialties of dentistry will receive a portion of their instruction and clinical experience in the above affiliate hospitals. These programs are specialty oriented and they serve to diversify the student's educational opportunities.

B. Continuation Education

The cooperative Continuation Educational Program of the School of Dentistry and University Hospitals is rapidly expanding. Three to five day courses in various aspects of hospital dentistry are being developed. The purpose of these courses will be to give graduate dentists in this state and throughout the country an opportunity to learn current concepts of patient care in a hospital so that they may best serve their public trust. Courses in pediatric dentistry in the hospital and hospital dentistry (general) are among those currently being offered. Continuation courses to benefit physicians and other health professionals will also be developed. Examples of conjoint areas of interest are maxillofacial and cleft palate rehabilitation and preventive dentistry.

C. Parental Training

Students in Dental Hygiene and Dental Assisting will receive instruction and experience in effecting oral health care within the limits of their responsibility in a hospital clinic environment and at bedside. Dental Hygiene students will perform bedside dental prophylaxes on appropriate hospitalized patients under supervision. Both groups of students will receive instruction and experience in taking and developing panoramic radiographs, in the preparation of treatment trays, in special sterilization techniques, and in chairside and bedside assisting when patients are physically and/or mentally ill or otherwise handicapped.

## D. Participation in the Undergraduate Curricula of Other Health Professionals

### (1) Medical School

Just as it is important for dental students to recognize and relate systemic dysfunction to oral disease, it is equally important that medical students be aware of the relationships of oral health to total health. A course in stomatology and preventive dentistry should include lectures, seminars, rounds and informal discussions with the dental faculty and graduate and undergraduate dental students.

### (2) School of Nursing

To fully perform her duties as a health professional, a nurse must be educated in preventive oral health measures. The School of Dentistry-University Hospitals conjoint program in preventive dentistry will be an on-going orientation and in-service type of program including lectures, seminars, demonstrations and clinical exercise sessions under supervision of the faculty of the School of Dentistry.

### (3) College of Pharmacy

Modern scientific dentistry utilizes pharmaceutical services to a much greater extent than ever before. It naturally follows that dental students at all levels receive instruction in drug therapy. It is equally important that pharmacy students be informed on the effects of such therapy clinically. A seminar program will be developed to facilitate this orientation in the best interests of patient care. Joint rounds on dental inpatients receiving drug therapy will be conducted to reinforce this learning experience.

## E. Teaching Methods Analysis

A continuing review of teaching methods for developing skills pertinent to treatment of the hospitalized patient will be conducted. New and different equipment will be clinically tested and evaluated.

The School of Dentistry-University Hospitals program in education will serve as a model for future affiliation programs. As clinic space, hospital beds and faculty become available, the program can be implemented to its full potential.

## Service

### 1. Consultative Services

The quality of consultative service is directly reflected in patient care. Since the hospital program involves dental and paradental students at various levels, it is especially important that the services rendered

set a standard worthy of their emulation when they assume their professional and technical responsibilities upon completion of their training. Among the services provided are: functional analysis of occlusal disharmonies, differential diagnosis of oral lesions by biopsy and cytological processes, and oral roentgenographic interpretation.

## 2. Oral Health

The cooperative comprehensive oral health program includes diagnostic, preventive, supportive and rehabilitative dental care. Patients are examined and treated at bedside when necessary. Clinical facilities are presently inadequate to satisfy outpatient service needs and teaching and research objectives. When facilities are expanded according to present plan, these deficiencies will be corrected.

## 3. Community Cooperation

Upon the invitation of proper authority, our professional, technical and administrative staffs will serve as consultants in the development of dental services in hospital facilities throughout the state and region.

## 4. Oral Health Knowledge

Quality in dental care is dependent upon the knowledge and abilities of the professionals providing treatment. The School of Dentistry and the University Hospitals recognize their responsibility in the dissemination of information to expand and update dental services. Data obtained from evaluation of new and different equipment, experimentation with new modules for rendering patient service, and researching specific disease problems will be disseminated to appropriate professionals and institutions. This will be accomplished through continuation education programs, graduate courses of study, and the publication of research findings. The results of these efforts are directly reflected in service to patients.

## Research

A long range projection of conjoint School of Dentistry-College of Medical Sciences-University Hospitals research activities is difficult to establish accurately. However, investigations will embrace the biological aspects of oral health in relation to specific oral dysfunctions, medico-dental health patterns, preventive dentistry, systems for the accomplishment of dental services in a hospital environment, and educational methods. Research training will be an integral part of the investigations. As facilities and funds become available, these programs will be implemented or expanded.

### 1. Oral Disease

#### A. Caries and Hard Tissues

Studies of the formation, calcification, composition and fine structure of dental hard tissues including bone will be pursued.

## B. Peridontal Disease and Soft Tissues

Subject areas for consideration include: normal and diseased peridontal tissues, oral cancer, saliva and salivary glands, oral microorganisms, oral ulcerations, and the reaction of oral tissues to temperature change and applications of force.

## C. Oro-Facial Growth and Development

Studies on cleft lip and palate and other oral and facial deformities including the malalignment of teeth will be conducted.

## 2. Preventive Dentistry

Investigations into the control of oral disease including clinical testing of new approaches to prevention will be advanced. These studies require interdisciplinary cooperation in that implementation and acceptance of preventive measures is so largely affected by sociological, psychological and cultural patterns.

## 3. Medico-Dental Health Patterns

There is a distinct need for more knowledge and a better understanding of the relationship of dental and systemic disease entities. The effect of treatment processes and the biologic aspect of materials used must also be investigated. Studies to achieve these goals will be fostered.

## 4. Patient Care

Treatment systems must be developed to meet the dental care needs of our growing population. The composition of the "dental team" and its relationship to other health professionals must be studied in greater depth. Experimentation in design and use of space and equipment is necessary. System studies dealing with closer integration of medical, dental and hospital programs must be implemented. Such studies will deal with various methods of dental treatment as they affect and are affected by systems of medical care and hospital administration protocol, and will include investigations into greater conjoint utilization of diagnostic and therapeutic facilities, records, and other administrative processes.

## 5. Educational Methods

New pedagogical techniques and achievement measurement devices are needed if students are to receive maximum benefits from their educational experiences. The body of knowledge in biology of oral tissues is increasing at a pace which demands a change from traditional methodology.

## 6. Interdisciplinary Participation

Fundamental and applied research programs which are multidisciplinary in nature will become increasingly integrated with hospital activities. The opportunities for participation of other health professionals is unique in this environment.

## HOSPITAL DENTISTRY

1. The following space requirement projections are predicated upon the presumption that 270 hospital beds will be located in the new Health Science Center by 1973, and that the Mayo-Heart-Rehabilitation Hospital complex will continue to serve as a facility for patient care until 1986.
2. The professional staff and supporting personnel estimates are based upon the average population of 150 undergraduate dental students in each of two classes, 150 student dental hygienists, 150 student dental assistants, and 75-80 graduate students in the various clinical specialties of dentistry.
3. The University Hospitals Dental Service will include a comprehensive (in- and out-patient) dental care clinic in the new Health Science Center, and an inpatient dental clinic in the Mayo complex. Clinical services in all disciplines of dentistry including maxillofacial and cleft palate prosthetics will be offered.

4. Projected floor space requirements\* are:

	<u>1973</u>	<u>1986</u>
a. Dental Administration	720	920
b. Comprehensive Care Clinic	16,598	18,958
c. Mayo Complex Clinic	3,966	0**

5. Staff and personnel requirements for implementation of the anticipated educational, research and service programs are:

	<u>1966</u>	<u>1973</u>	<u>1986</u> ***
<u>a. Professional Staff</u>			
Chairman, Department of Dentistry, School of Dentistry	1	1	1
Vice-Chairman, Department of Dentistry, School of Dentistry, and Director, Univer- sity of Minnesota Hospitals Dental Clinics	0	0	1
Chief, Section on Oral Surgery	1/3	1	1
Attending Staff Oral Surgeon	0	0	1

\* Square foot dimensions exclusive of corridors and mechanical service facilities - detailed schedule attached.

\*\* Inactivation of the Mayo Complex Clinic will be coordinated with the transfer of the last remaining patients to the new Health Service Center. Emergency dental treatment will continue to be provided for rehab and heart patients in a multi-purpose room within the Rehab Center or at bedside as indicated. Routine dental therapy after 1986 will be provided in the new comprehensive care clinic or in the OR suite.



a. <u>Professional Staff (continued)</u>	<u>1966</u>	<u>1973</u>	<u>1986***</u>
Chief, Section on Periodontics	0	1	1
Attending Staff Periodontist	0	0	1
Chief, Section on Prosthodontics, and Director, Maxillo-Facial, Cleft Palate Program	0	1	1
Attending Staff Prosthodontist	0	0	1
Chief, Section on Pedodontics	0	1	1
Attending Staff Pedodontist	1/10		1
Chief, Section on Restorative Dentistry (operative and endodontics)	0	1	1
Attending Staff Operative Dentist	0	0	1
Chief, Section on Oral Diagnosis and Oral Medicine	1/6.	1	1
Attending Staff Clinical Oral Pathologist or otherwise qualified oral diagnostician	0	0	1****
	<u>1.6</u>	<u>7(5)Univ.</u>	<u>14(10)Univ.</u>
		support	support

Consultants on Orthodontics, Oral Pathology, Microbiology, Anatomy, Physiology, Pharmacology, Radiology, Anesthesiology, and other medical and/or basic science areas will be requested periodically, but no provision is included in this report.

The staff of the Department of Dentistry, University of Minnesota Hospitals, should be either Board Certified or otherwise recognized as authorities in their particular dental specialties. The academic rank of this staff should be commensurate with the qualifications and experience of the individual appointees, and in accordance with existing School of Dentistry personnel policies. The following recommendations are offered for consideration:

1. The Department Chairman and Vice-Chairman as full professors. 1(1973), 2(1986)
2. The Section Chiefs as either associate or full professors. (6)
3. The Attending Staff as either assistant or associate professors. (6)1986

\*\*\* Additional University of Minnesota Hospitals professional staff requirements are not anticipated in 1986 in that the staff serving the Mayo Complex Clinic may be reassigned to the Comprehensive Care Clinic at that time.

\*\*\*\* If the "Multiphasic Clinic" is adopted by or prior to 1973 and dental screening is included as a function of that clinic, one more oral diagnostician will be needed.

b. <u>Civil Service Staff</u> (Clinical and Administrative)	<u>1966</u>	<u>1973</u>	<u>1986</u>
Dental Health Coordinator (dental hygienist)	0	2	2
Registered Nurse (OR Assistant)	0	2	3
Clinical Dental Hygienist	1	3	3
Dental Assistant (Clinical)	0	10	12
Dental X-ray Technician	0	3	3
Dental Laboratory Technician	0	2	2
Secretary, departmental administration	1	1	1
Secretary, clinic administration	0	1	1
Receptionist, clerk typist	0	1	1
Receptionist, clerk filing	0	2	2
Clerk Typist, dictaphone transcriber	0	2	4
Data (key punch) Operator	0	0	1
	<u>2</u>	<u>29</u>	<u>35</u>

Additional civil service personnel requirements are not anticipated prior to 1986. However, if the hospital adopts the "Multiphasic Clinic" concept, and if dental screening is included as a routine adjunct, two additional full time dental x-ray technicians and one additional receptionist-clerk typist will be needed. Position grades and salaries should be in conformity with positions of comparable responsibility in other areas of the School of Dentistry and the University Hospitals

6. The foregoing space and staff projections are exclusive of affiliated hospital facilities and staff since no budget requirements are anticipated.

ADDENDUM

Space Requirements for the Department of Dentistry  
University of Minnesota Hospitals

(Revised July, 1967)

	<u>1966</u>	<u>1973</u>	<u>1986</u>
1. Departmental Administration	86	720 <sup>1</sup>	920
2. Comprehensive Hospital Dental Clinic (in- and out-patient)			
Faculty, Staff Offices	---	3,250	4,000
Clerical Offices	---	850	1,150
Research Laboratories	---	1,000	1,360
Clinical Laboratories (technical service and diagnostic)	---	700	900
Diagnosis Rooms (including panoramic, cephalometric and regular dental x-ray facilities)	---	1,040	1,040
Treatment Rooms	---	4,320	4,320
Storage and Service Rooms	---	560	760
Toilets and Showers	---	572	572
Reception and Waiting	---	1,500	1,500
Men's Locker and Lounge	---	600	600
Women's Locker and Lounge	---	<u>336</u>	<u>336</u>
 Total (exclusive of corridors and mechanical service facilities) CHDC	 86	 16,598 Sq. Ft.	 18,958 Sq. Ft.
 Hospital Bed Space (New Center)		10	20
Hospital OR Space (New Center)		2 OR	3 OR
3. Mayo Complex Clinic (Inpatient)	<u>Listed</u>	<u>1973</u>	<u>1986</u>
Faculty, Staff Offices	0	660	0
Clerical Offices	0	360	0
Research Laboratory	0	360	0
Clinical Laboratories	0	120	0
Observation Classrooms	0	224	0
Diagnosis Rooms (X-ray)	49	220	0
Treatment Rooms	224	744	0
Storage and Service Rooms	0	292	0
Toilets and Showers	0	200	0
Reception and Waiting	128	250	0
Men's Locker and Lounge	0	336	0
Women's Locker and Lounge	<u>0</u>	<u>200</u>	<u>0</u>
 Total MCC	 401	 3,966	 0
 Total Floor Space Requirements	 487	 20,564	 18,958

<sup>1</sup>The request for Hospital departmental administrative space has been considered in this report. Clinical personnel and space will be considered as a part of future planning for the Outpatient Clinics. Requests for beds and operating room space will be considered by select committees in those areas.

.JOINT PROGRAM STATEMENT OF  
THE COLLEGE OF PHARMACY AND  
THE COLLEGE OF MEDICAL SCIENCES/UNIVERSITY HOSPITALS

Introduction

When President Wilson appointed the Long Range Planning Committee for the Health Sciences in October, 1964, there was interest in including the Colleges of Pharmacy and Veterinary Medicine in the planning group. This was not done, however, and the planning started with the College of Medical Sciences (Medical School, School of Public Health, School of Nursing, University Hospitals) and the School of Dentistry. Subsequently, in 1966 the Deans of Veterinary Medicine and the College of Pharmacy were appointed to the Health Sciences Long Range Planning Committee.

The Committee for the Study of Physical Facilities for the Health Sciences published its first report entitled "Future Planning for the Health Sciences, Part I. Preliminary Report on Roles, Objectives and Programs" on January 1, 1966. The second report, "Future Planning for the Health Sciences, Part II. Program and Personnel Space Projection," was published in October, 1966. The third report, "Future Planning for the Health Sciences, Part III. Subcommittee Program and Space Reports," was published in February, 1967.

The College of Pharmacy published within its own faculty its first report, "Future Planning for the Health Sciences--College of Pharmacy" on January 19, 1967.

When these four reports were reviewed in total, it was apparent that the College of Pharmacy had many strong and direct relationships with other units of the Health Sciences. The purpose of this report is to outline some of the joint interests between University Hospitals and the College of Pharmacy in the applied clinical areas. In drafting this report, we recognize the College of Pharmacy also has equally strong interests in direct relations with the basic science departments, the clinical departments of the Medical School and the Schools of Public Health, Dentistry and Nursing. In outlining the University Hospitals, College of Pharmacy joint programs, an effort has been made to create an environment in which the two units will have a full understanding of the various program objectives and the implications of these programs in terms of the allocation of resources. By this joint planning effort, it should be possible to work out better mutual programs in the areas of teaching, service and research.

Roles

The roles, objectives and programs of the two units have been reasonably well defined in the individual planning documents. The College of Pharmacy role and program reports come from the aforementioned Pharmacy planning document dated January 19, 1967. University Hospitals issued a role and program report in April, 1967, and this report was enlarged on by the Pharmacy Department in a special Hospital-Pharmacy Department report dated May, 1967.

The roles of the two units are similar to those outlined in the January 1, 1966, planning report. They recognize that:

1. University Hospitals and the College of Pharmacy are primarily concerned with the education of undergraduate pharmacy students. A secondary related role is to utilize the clinical environment as a valuable resource for graduate education (i.e., Biopharmaceutics, Medicinal Chemistry, Pharmacognosy and Hospital Pharmacy). This education role, although primarily of benefit to the State of Minnesota, will also benefit the region and the nation because of the excellence of the units involved.
2. The second important role is that of advancing the state of knowledge of pharmacy in a clinical setting through applied research. The hospital setting for pharmacy research will represent but one aspect of the total College of Pharmacy program in research.
3. The third role is concerned with the rendering of exemplary pharmaceutical services to the patients of the University Hospitals. Pharmaceutical services should serve as a model for the health professionals involved and set a standard of excellence for the students to follow when they go into practice.
4. The combination of all these roles suggests that the College of Pharmacy and University Hospitals should occupy a position of leadership in demonstrating and testing new ideas in the utilization of pharmacy services.

### Objectives

#### 1. Teaching

- a. To develop in pharmacy students the essential knowledge, skills and attitudes necessary for effective community practice. These can best be learned and developed in a controlled clinical setting.
- b. To develop the knowledge, skills and attitudes essential for specialized institutional pharmacy practice.
- c. To develop among other health science professionals a better understanding of the nature and extent of pharmaceutical services through:
  - (1) the presence of pharmacy faculty and students in the clinical environment, and
  - (2) the evolution of meaningful interprofessional relationships during the learning years.
- d. To develop programs that recognize and encourage the team approach in the delivery of health services once meaningful interprofessional relationships are established with other health professionals.
- e. To develop concurrently a multi-disciplinary or team approach in continuing health professional education through involvement of the College of Pharmacy in health science continuing education programs by participation in programs with the School of Dentistry, Medicine, Nursing and Public Health.

## 2. Research

- a. To develop an environment where observations about the utilization and effectiveness of therapeutic agents can be measured and hypotheses developed to describe the results of this therapy.
- b. To extend research beyond a testing of existing therapeutic agents and to expand the knowledge about these agents through controlled experimentation.
- c. A third research objective would be to participate in interdisciplinary research to broaden the scope of pharmacy research.
- d. To develop an environment where new programs and procedures for the delivery of pharmaceutical service can be accomplished.
- e. To develop quality control procedures for both purchased and manufactured pharmaceuticals.
- f. To develop the most effective means for clinical pharmacy instruction.
- g. To develop mechanisms for the effective dissemination of drug information.

## 3. Service

- a. To provide exemplary service to patients of the University Hospitals.
- b. To provide exemplary consultation in pharmaceutical services to physicians, pharmacists and other health science personnel in the state.
- c. To develop pharmaceutical service within the hospital in a model way so that the standards of practice in the state could be elevated by the emulation of University Hospitals programs.
- d. To provide the capability to assist other hospital pharmacies in the state to improve their pharmaceutical services by utilization of the University Hospitals pharmacy nucleus.
- e. To provide necessary orientation for community pharmacists who wish to participate in institutional health care programs.

### Programs

1. A central drug information resource (including use of computer techniques.) This would include routine abstracting of major drug publications for immediate use by all health science personnel in the complex and in the region. Information on new drugs, investigational drugs, toxicology and new information on old drugs would be catalogued for instant use. In-depth examinations of the literature will be done if more extensive information is required.

2. Educational programs for other health science personnel. Establishment of an on-going orientation and in-service program for nursing service employees, physicians, social workers and unit managers concurrently with formal instruction of students in Medicine, Nursing, Social Work, Public Health and Dentistry will improve patient care and health professional education through a better understanding of the nature, extent and utilization of pharmaceutical services.
3. Inpatient drug distribution system. Development of a drug distribution system for inpatients that will minimize medication errors and increase nursing efficiency through preparation and distribution of unit-of-use, ready-to-administer drug packages, dispensing from original physician's orders and monitoring therapy with patient drug profiles. Establishment of decentralized pharmacy service for ready availability of all medications and information about drugs.
4. Outpatient drug distribution and drug information systems for ambulatory patients. Development of an outpatient drug distribution system that will minimize errors in self-administered medications. Pharmacist monitoring of drug therapy through maintenance of patient drug profiles. Dissemination of public health information to clinic patients.
5. Programs designed to expand the role and responsibilities of the future pharmacist. These could include such things as:
  - a. Participation by the pharmacist in drug and dosage selection for particular patients through inclusion of the pharmacist as an integral member of the inpatient rounding team.
  - b. Responsibility for detecting therapeutic and pharmaceutic incompatibilities between drugs, dangerous drug interactions, and dietary-drug contraindications.
  - c. Programs designed to experiment with the availability of pharmaceutical services on inpatient units.
  - d. Expansion of the pharmacist's role on the therapeutics committee of the hospital.
  - e. Developing a program to educate the pharmacist in a drug use control function for the community. This would include:
    - (1) Information for physicians and other health professionals.
    - (2) Maintenance of family drug record system for the physician and patient.
    - (3) Patient drug information.
    - (4) Control of self medication in non-prescription drugs and devices.
    - (5) Community health information function (poison control, public health information).
  - f. Exposure of pharmacy students to the total functioning of University Hospital Pharmacy service. This would include:
    - (1) Outpatient dispensing.
    - (2) Inpatient dispensing.



- (a) Central pharmacy.
- (b) Satellite pharmacies.
- (c) New proposed programs (i.e., 24 hour coverage, original order copy to the pharmacy, IV additive program, unit dose dispensing, investigational drugs.)
- (d) Bulk compounding (sterile area, non-sterile area, pre-packaging area, water supply and clean-up area).
- (e) Control laboratory.
- (f) Drug information center.
- (g) Administration and supply functions (purchasing central storage, automatic stock replacement and departmental administration.)

FINAL DRAFT

UNIVERSITY OF MINNESOTA HOSPITALS

STATEMENT OF ROLES AND OBJECTIVES

1968-69

R O L E S

Educational Environment- In concert with the primary role of the Health Sciences Center, the University of Minnesota Hospitals is charged with providing an environment for clinical education in the health sciences. Most departments assume a teaching role for full-time students, as well as programs of inservice training and continuing education.

Patient Service- The service role of University of Minnesota Hospitals is to provide ambulatory and inpatient health care to referred patients. This role is characterized by the coordination of the activities of many health professionals into a comprehensive approach to health care. The University Hospitals will provide care to:

- A. All patients referred by their attending physician, dentist or other health professionals and social agencies.
- B. Patients who are members of groups participating in special programs.

Health Research- University Hospitals has a responsibility to investigate the organization and distribution of health care services, to conduct research related to the provision of hospital services and to provide an environment for the conduct of clinical research.

Model- University Hospitals has a composite fourth role to serve as a regional model for exemplary patient service, education and research.

O B J E C T I V E S

I. TEACHING OBJECTIVES

1. Inservice Training - To strengthen and develop existing and new inservice training programs for hospital personnel.
2. Planning - To stimulate and participate in the development of an integrated planning effort among the health science educational programs at the University.
3. Provision of Facilities - To provide exemplary facilities and services that meet the needs of the educational programs of the Health Sciences Center and to administer these services in an effective manner.
4. Staff Participation in University Education Programs - To encourage the active participation of hospital staff as instructors in University undergraduate and graduate educational programs which have been defined as being best taught in the hospital environment.
5. Continuing Education - To provide an ongoing, up-to-date program of continuing education for appropriate health science personnel.

II. SERVICE OBJECTIVES

1. Quality Patient Programs - To operate a quality health care program based upon the efficient use of all resources that will maximize the health potential of every patient. Equal emphasis will be given to the ambulatory and inpatient portions of the patients health care experiences. In addition, this service must be provided in a way that will meet the objectives of the health sciences educational programs.

2. Information Systems - To better organize available patient, service, financial and administrative information. This objective includes the development of systems, both electronic and mechanical, for the efficient collection, manipulation, collation, storage, and dissemination of data in a form useful to the hospital and other health science staff members.
3. State Health Care System - To integrate University Hospitals services with other hospitals and health resources toward the development of a comprehensive health care system for the state of Minnesota.

III. RESEARCH OBJECTIVES

1. Health Care Effectiveness - To investigate hospital services to determine optimum organization of these services and test hypothesis about the economics of health care.
2. Health Care System Development - To contribute new knowledge and understanding about patterns of hospital care and the role to be played by University Hospitals in a rapidly changing environment.
3. Establishment of Data Base - To establish bases of data by which health care quality can be measured.
4. Clinical Research - To conduct research in cooperation with members of the clinical staff.

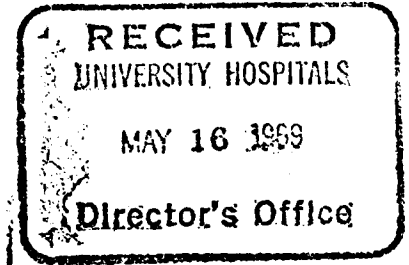
IV. MODEL OBJECTIVES

1. Environment for Health Team - To provide a model environment for the operation of the health team.

2. Health Care System Model - To serve as an example to the hospital field of the integration of a health sciences center in the health care system.
3. Demonstration Projects - To provide a setting for demonstration projects encompassing all aspects of the health care delivery system.
4. Community Service - To share experience in this hospital with other hospitals in the state related to operations, organization and provision of services.

V. GENERAL OBJECTIVES

1. Personnel Recruitment - To attract, recruit and retain the best qualified personnel to the staff of University Hospitals and thereby serve as a source for hospital leadership in the region.



University of Minnesota Hospitals

University Hospitals Study Committee Report

concerning

Hospital Development within the  
Health Sciences Development Program

METROPOLITAN ST. PAUL AND MINNEAPOLIS HOSPITAL PLANNING COUNCILS

Prepared by the Joint Staff

April 1969

## Foreword

A joint committee representing health professionals from St. Paul and Minneapolis was formed under the chairmanship of Dr. Bruce Lewis. This committee was charged to review the proposed expansion of University Hospitals and to prepare this report as the basis for further review by the Advisory Committees of the St. Paul and Minneapolis Hospital Planning Councils. The committee consisted of the following persons:

Dr. Bruce Lewis, Chairman, Minneapolis  
Dr. David Craig, St. Paul  
Mr. Kenneth Holmquist, St. Paul  
Dr. Clarence Rowe, St. Paul  
Mr. William Wallace, St. Paul  
Dr. John LaBree, Minneapolis  
Mr. Stanley Nelson, Minneapolis  
Mr. Carl Platou, Minneapolis

The committee met with representatives of University Hospitals on July 16, 1968 at which time an oral presentation was made to highlight rather voluminous documentation of the Health Sciences Development Program, a part of which involves expansion of hospital facilities. Others invited to hear the presentation were as follows:

Dr. Robert Barr, Minnesota Department of Health  
Mr. Walter Dorle, President - MSPHPC  
Mr. Donald Dunn, Twin City Hospital Association  
Mr. Hugh Faville, Metropolitan Council  
Dr. Ellen Fifer, State Planning Agency  
Dr. Helen Knudsen, Minnesota Department of Health  
Mr. Harry L. Sutton, Jr., President - PAHMM  
Mr. Roland Westerlund, Metropolitan Council

A second Study Committee meeting with representatives of the University Hospitals was held on April 3, 1969. This meeting provided additional information and clarification concerning programmatic aspects of the Health Sciences Center, particularly as they involved pediatric care, education and research.

The findings and recommendations contained in this report are based upon Health Sciences planning reports, questions and answers following the oral presentations and additional information supplied at the request of the Study Committee.

## Summary of Proposal:

As part of a total Health Sciences building program estimated to cost in excess of \$67 million when completed about 1975, the University Hospitals propose to 1) add approximately 160 acute beds, 2) add new facilities to enlarge ambulatory care space from the present 25,000 square feet to 90,000 square feet, 3) add an ambulatory care (motel type) facility of about 9,000 square feet, 4) provide new diagnostic radiology and radiation therapy facilities, 5) construct a "service center" building to house storage and supply areas, new kitchens and new cafeteria and dining facilities, 6) expand the surgery suite, 7) reorient and enlarge other hospital departments through remodeling, and 8) provide a modern automated central distribution system for supplies, an improved parking and vehicular access system and a convenient internal pedestrian circulation pattern. The scheduled completion date is 1973. Funding is dependent upon the State Legislature and Federal grant programs.

Plans subsequent to 1973 suggest continued use of Variety Club Heart Hospital, Children's Rehabilitation Center and Masonic Memorial Hospital with all beds and related services in Mayo moved to new facilities at a site now occupied by Powell Hall.

## UNIVERSITY HOSPITALS DEVELOPMENT PROGRAM - FINDINGS AND RECOMMENDATIONS OF THE STUDY COMMITTEE

### Introduction

The University of Minnesota began a health sciences development program in 1964. The study resulted in a presentation to the legislature in 1967. The legislature granted \$650,000 for land purchase and \$500,000 for further architectural studies. The land has been purchased, the architectural studies have gone on, and the University was scheduled for presentation to the Legislative Building Commission on July 15, 1968. The University Hospitals' portion of the Health Sciences Capital Development Program will not be presented to the legislature until 1971. However, even though no money will be requested this session, the State requires the total plan be presented as a package.

The main force behind the bed expansion has been the need for new programs in family practice, oral surgery and pediatric surgery and the development of small surgical specialties in ENT, Eye, Neurosurgery and Orthopedics plus a need for a large and improved intensive care unit.

Money for these buildings in the amount of approximately \$24 million would be requested from the 1971 legislature. The University anticipates a 50% federal funding, so the actual State money requested at today's price rates would be \$12 million.



The proposals presented to the review committee are part of a longer-range plan which would call for the abandonment of the Mayo complex of 584 beds and the construction of a new high-rise University Hospitals on the existing Powell Hall site. The move of the clinics is in anticipation of this long-range development, the next phase of which would take place sometime after 1975.

**Findings:**

1. The roles, objectives and programs of the University Hospitals have been well defined. The following roles have been delineated:

Patient Service - The service role of University of Minnesota Hospitals is to provide ambulatory and in-patient health care to referred patients. This role is characterized by the coordination of the activities of many health professionals into a comprehensive approach to health care. The University Hospitals will provide care to:

- a. All patients referred by their attending physician, dentist or other health professionals and social agencies.
- b. Patients who are members of groups participating in special programs.

Educational Environment - In concert with the primary role of the Health Sciences Center, the University of Minnesota Hospitals is charged with providing an environment for clinical education in the health sciences. Most departments assume a teaching role for full-time students, as well as programs of inservice training and continuing education.

Health Research - University Hospitals has a responsibility to investigate the organization and distribution of health care services, to conduct research related to the provision of hospital services and to provide an environment for the conduct of clinical research.

Model - University Hospitals has a composite fourth role to serve as a regional model for exemplary patient service, education and research.

2. Major themes contained in the planning reports prepared by the University Hospitals are as follows:
- a. Programs of the hospital will serve all of the health sciences.
  - b. Every effort will be made to automate procedures.
  - c. Cost effectiveness principles will be used.
  - d. Electronic data processing will be used to replace current record systems.
  - e. Emphasis will be placed on comprehensive ambulatory care programs.
  - f. Hospital departments will be grouped in a functional manner.
3. Student enrollment projections for the health sciences suggest that total enrollment will increase from 3474 students in 1967 to 5290 students in 1973 and 6894 students in 1986. By category these projections are as follows:

	<u>1967</u>	<u>1973</u>	<u>1986</u>
<u>Medical</u>			
Medical Students	658	800	1000
Interns	42	45	55
Graduate Students			
at Medical Center	441	550	650
at Affiliated Hospitals	<u>246</u>	<u>350</u>	<u>400</u>
Total Medical	1387	1745	2105
<u>Dental</u>			
Dental Students	414	560	740
Graduate Students	54	179	274
Dental Hygiene	91	285	360
Dental Assisting	38	140	175
Others	<u>6</u>	<u>20</u>	<u>35</u>
Total Dental	603	1184	1584
<u>Nursing</u>			
Undergraduate	324	398	450
Graduate	71	138	225
Others	<u>4</u>	<u>14</u>	<u>35</u>
Total Nursing	399	550	710

	<u>1967</u>	<u>1973</u>	<u>1986</u>
<u>Public Health</u>			
Total Public Health	261	412	565
<u>Other Associated Health Professions</u>			
Medical Technology	121	250	290
Radiological Technology	215	385	730
Occupational Therapy	52	84	110
Physical Therapy	81	95	110
Rehabilitation Counselors	<u>15</u>	<u>25</u>	<u>30</u>
Total Other	484	839	1270
<u>Pharmacy</u>			
Undergraduate	300	480	560
Graduate	<u>40</u>	<u>80</u>	<u>100</u>
Total Pharmacy	340	560	660
GRAND TOTAL	3474	5290	6894

4. Principles used by the Medical Center to determine the types and size of "allied health" training programs are as follows:
  - a. Teaching programs should lead to baccalaureate or graduate degrees.
  - b. Generally, sub-collegiate programs should not be carried out except when special facilities or personnel preclude such programs elsewhere.
  - c. Sub-collegiate programs may be initiated as pilot or research projects to develop the requirements for such a course or to meet community and Medical Center needs.
  - d. Enrollment should reflect demonstrable needs.
  
5. Determination of needs for physicians and dentists was based on a study sponsored by the Hill Family Foundation entitled Health Manpower for the Upper Midwest.

6. Planning for physical facilities was based on six criteria -

- . conservation and enhancement of the desirable characteristics of the present Health Sciences Center
- . adequate in scale to serve all contemplated programs of the Health Sciences Center
- . encouragement of interaction among persons in all Health Sciences programs
- . maximum flexibility for adaptation
- . compatibility with other aspects of the University development
- . opportunity for development beyond any programs now contemplated

7. The University Hospitals expansion proposal is based on the following assumptions:

- a. Specialty hospitals will remain; i.e., Variety Club Heart Hospital, Children's Rehabilitation Center and Masonic Memorial.
- b. Number of hospital beds including specialty hospitals is expected to grow to approximately 1000. Further requirements for teaching beds will be provided through affiliation with other hospitals.
- c. Washington Avenue will be tunnelled within the next ten years.
- d. River Road can be used for access by service vehicles to the Health Sciences area.
- e. Access from the new parking facilities (near Oak and Washington) to the Health Sciences area will be via a mechanical conveyance system and an all-weather enclosed passage.
- f. The new parking facilities and underground access system to the Center will be funded outside the present Health Sciences capital budget.

8. The net increase in bed capacity which will result from new construction, remodeling and other internal adjustments are as follows:

Anesthesiology	6
Dentistry	9
Medicine	10
Dermatology	2
Ophthalmology	6
Otolaryngology	20
Radiotherapy	5
Surgery	12
Urology	7
Orthopedics	6
Neurology	1
Neurosurgery	6
Pediatrics	1
Pediatric Surgery	20
Family Practice	20
Intensive Care, etc.	<u>28</u>
<b>TOTAL</b>	<b>159</b>

9. Inpatient beds in the new facility will number 210-215. The service assignment of these beds is for pediatrics (perhaps the least adequate inpatient facility at present), family practice and specialty services such as intensive care. Some beds will be lost through remodeling in the older hospital areas.
10. In addition to new inpatient facilities, the new hospital building will house new and expanded ambulatory care programs. The following findings are germane to these programs.
- The program of instruction in comprehensive personal medical care which began over seven years ago has been inadequately supported in terms of financing, space, facilities and personnel. To meet desired levels of excellence in present undergraduate education, a near doubling of current staff and near quadrupling of space is thought to be required.
  - The new ambulatory care center will house in an integrated manner the following services:
    - general inpatient & outpatient clinics
    - emergency receiving
    - diagnostic clinics
    - eye clinic
    - audology clinic
    - radiology services
    - family practice offices
    - classrooms

c. Based on the principle that the University will remain primarily a referral and consultative center for physicians of the region, patient visits are expected to increase from 113,000 per year to 180,000 per year. These projections are predicated on new facilities which will permit better scheduling for patient convenience, more personalized care, greater emphasis on undergraduate experience in ambulatory comprehensive care, development of the family practice specialty with as many as 30% of medical students "tracking" into this specialty in the second or third year of training and appropriate emphasis on community service programs.

11. Expansion of radiation therapy facilities which will incorporate new high energy sources such as a linear accelerator will be provided in a separate structure designed to maintain close integration with existing radiation facilities.
12. A patient origin study of University Hospitals inpatients during February and March 1968 show that 59% come from the seven county metropolitan area with Hennepin (37%) and Ramsey (12%) being most significant. Ambulatory patients from this same area are thought to represent an even larger percent of the total ambulatory patients being served by the University.

13. Patient day statistics for all services except long-term and rehabilitation are as follows:

	<u>Total</u>	<u>Med-Surg</u>	<u>Peds</u>	<u>OB</u>	<u>Psych</u>
1966	187,718	119,039	34,753	4,301	29,625
1967	188,556	125,115	32,348	4,227	26,866
1968	185,767	122,574	34,075	4,358	24,760

14. Occupancy figures for these acute services were 78% in 1966, 78% in 1968 and 77% in 1969.
15. Although all patients at the University have traditionally received like services in like manner, the charity patient as a financial classification is gradually being phased out. The reimbursed public patient classification has dropped from 35% of the census in 1960 to about 13% in 1968. Private patients (those who pay for both hospital services and physician fees) have increased from 31% in 1960 to 70% in 1968. The other major classification is a "per diem" (those who pay for hospital services only) which has gone from 34% in 1960 to 17% in 1968.

16. In January 1969 Mr. Harry Sutton addressed a letter to Mr. Malcolm Moos, President, University of Minnesota raising questions concerning the relative roles and relationships between the Pediatric Department of the Medical School and other community pediatric programs, especially the proposed programs of the Children's Health Center of Minneapolis. This matter became especially timely because the University Hospital's expansion program involved new pediatric facilities and suggested new emphasis by the University in areas of community pediatric services. The specific question raised was "would the University consider deferring their pediatric building program to merge with Children's Health Center at a site other than the University or, conversely, would the University consider the merger of the proposed Children's Health Center program with the University Childrens Hospital program?". The response came in two parts - 1) a statement entitled "University Position in Response to PAHMM Request" and 2) a letter from the Department of Pediatrics to Dr. Arnold Anderson. The following excerpts are from these responses:

- a. There is a nationwide unhappy history of poor success of pediatric programs where a children's hospital and university pediatric program have operated without full interdependence. The reasons for the difficulties of maintaining a separate community children's hospital are outlined in the enclosed ..... a letter from Professor and Head of Pediatrics, John Anderson, to Dr. Arnold Anderson.
- b. Both of these institutions are committed to provide excellent intramural hospital care and excellent comprehensive and continuing ambulatory care for infants and children. Both are committed to provide educational programs to increase the medical and medically related manpower. Both must be concerned with research on problems which relate to the needs of children in the community and the state as a whole. Both must become engaged in the development of experimental models on the delivery of health care to infants and children. These are broad objectives common to both institutions, the Children's Hospital and Pediatrics Department of the Medical School. The essentiality for an interdependence becomes even more clear when we consider the magnitude of our future obligations in the face of rising economic factors, overwhelming demand for medical services, overwhelming demand for medical manpower, and the need to deliver in a more efficient way more health care to more children who are an increasing proportion of our total population. I do believe that the broader aspects of professional service and education can be provided in a common facility rather than by separate geographically distant facilities.
- c. It should also be less expensive to provide a larger facility with broader function if a joint facility could be constructed. This will obviously avoid duplication of the many required services such as the clinical laboratories, the expensive radiology and roentgenology services, the expensive complex and multipersonnel surgical services and so on. These expanded areas are now planned for in the proposed Health Sciences facility and can be made available also to the needs of the Children's Hospital.

- d. It is doubtful that the Children's Hospital as a free standing hospital or even as a part of a consortium of community hospitals such as with the General Hospital or with the Chicago Avenue Complex can command as effectively these research and educational dollars as can the Medical School and the University Hospital. A joint service and educational endeavor designed for the metropolitan community and the State of Minnesota, and in fact, the northcentral region of the United States, will provide a magnitude which will further encourage the development of a large number of programs of an education and research nature supported by Federal and Foundation funds.
- e. There is in my mind no real problem of great concern regarding the responsibilities of staff when composed of both practitioners of Pediatrics and the University Hospital staff.
- f. The problem of care for crippled children in the state program of the Crippled Children's Service deserves some comment. It does seem logical that a state supported program such as the Crippled Children's Service be an intimate part of the State University Hospital.
- g. The present freeway system now presents a situation in which accessibility to the University and its Health Sciences facilities is equally good if not better than locations near the Hennepin County General Hospital or the Chicago Avenue complex.
- h. It is my sincere hope that we all may take a larger look at our responsibilities. Our responsibilities are common. The medical profession, the pediatric component of the medical profession, and the Medical School and its Pediatric Department are all striving for the same goals. I do believe that the needs of infants and children in this community, state and in this region can be best served if the Children's Hospital and the Pediatric Department of the University Hospital join hands in developing a facility which unquestionably can be without parallel in the United States.
- i. The University must keep a strong pediatric department as part of a comprehensive educational center. Pediatrics, beside the study of internal medicine of children, is a specialty comprised of and dependent on many other medical and surgical specialties. Facilities, essential personnel, and supporting disciplines for educational programs in pediatrics at the University of Minnesota, come from resources beyond the Department of Pediatrics and transfer of these extra-departmental resources to a community pediatrics hospital would be extremely difficult, if not impossible. Major strengths have been developed at Minnesota, for example, in pediatric neurology, surgery, rehabilitation, renology, organ transplantation, and many other disciplines as cooperative programs in training and research between the Department of Pediatrics and departments of Neorology, Neurosurgery, Surgery, Urology, Physical Medicine, and others. A complex intertwining of medical faculty, allied health professionals, budgeting, and facility-sharing underpins these existing programs. The training of general pediatricians, general surgeons, physiatrists, as well as individuals more highly specialized in



medical and surgical disciplines has been established in this format. Trainees and trainers involved who are not in the Department of Pediatrics are also involved in programs of their parent disciplines which are also located in University Hospitals, and are dependent on adult patients. Geographic separation of a part of each of these programs could be accomplished only with great difficulty, and the newly assembled components would each have lost the strength of unity they now display. Relocation away from the basic sciences and other campus programs would also change the nature of the programs and the personnel that could be attracted to them. Thus, a relocation to a site remote from the campus would have profound effects on the Department of Pediatrics. In addition, the widespread change that this move would demand of many other programs would constitute a major revision of the College of Medical Sciences. Although certain gains might be foreseen, the attractiveness of the early stages of planning by the Children's Health Center is less than demanding of serious consideration that this facility become the center of the Pediatric Department programs.

- j. Because of the referral nature of the patient population at University Hospitals, it does not provide a teaching base for pediatrics that is complete. It serves as a referral center for patient care for a wide geographic area and complex medical problems constitute a high fraction of its teaching patient population. The development of a faculty and facilities competent to meet this challenge has allowed development of teaching and research programs of high quality. To be complete pediatric programs, however, training for medical students and general pediatricians extend to three community hospitals and two community health care facilities. These affiliated resources provide training opportunities in newborn care, well child care, emergencies, general outpatient care, and uncomplicated common illnesses, few of which are present at University Hospital. These affiliated facilities are essential supplements, but none could provide the core of the program now established at the University.
- k. The University would be willing to merge its program with that of the proposed Children's Hospital. There would be areas to explore in terms of patient privileges, staff appointments et cetera with the Children's representative, but at this time we see no great barrier.
- l. A Children's Health Center, as proposed, located away from the University and in a consortium of private hospitals will be unlikely to duplicate facilities of University Hospital. Rather, it will probably become a consolidation of pediatric care facilities to replace existing facilities of a few hospitals. While there would be advantage to this from a community point of view, we do not see major strengths in research and education developing from this approach. We would like very much to work with the people at Children's Hospital and would be willing to go into greater detail about the feasibility of accepting the program on a University site.

17. Although copies of Mr. Sutton's letter to Mr. Moos were sent to representatives of Children's Health Center, no written response was made and none was expected. However, a meeting between representatives of the University and Children's Health Center was held to explore issues. To the extent that any consensus was reached, it was that both parties should continue to meet and explore areas of common interest and concern. However, in order to review the University proposal in context with community pediatric plans, it seems necessary to state some of the intentions of the Children's Health Center. The position of the Children's Health Center can perhaps be set forth best by noting excerpts from their open letter in response to the "Plan for Development of Hennepin County General Hospital" which suggested collocation of General Hospital and Children's Health Center.
- a. We are pleased that the consultants feel that the scope of the program offered by Children's is sufficiently comprehensive that Children's should be included among the voluntary institutions invited to co-locate with Hennepin County General Hospital (pp. 56, 89, 90) to provide (functionally) close interrelationships between Children's and HCGH, which relationships the Report indicates are desirable. (Parentheses are ours.)
  - b. We agree with the desirability of a functionally close relationship between Children's and HCGH and with all of the people and institutions, including the U of M, who cooperate with HCGH. We note that functional closeness might be facilitated by physical proximity.
  - c. Children's however, is already committed to be a part of Minneapolis Medical Center, Inc., both functionally, and re physical location. On December 19, 1968, Children's completed the purchase of the entire city block between Chicago and Elliot Avenues, and 25th and 26th Streets (per policy and land usage agreement of MMCI) for the purpose and with the objective of starting there, in summer, 1969, the construction of the long-awaited Children's Health Center and hospital, to be in operation by late 1970.
  - d. We are particularly gratified to see that the Report (Appendix F,9) finds that of the existing urban hospital complexes, "Minneapolis Medical Center, Inc. ... provides the best mix of clinical services, facilities, professional personnel, planning and program development among the complexes to support the resources of Hennepin County General Hospital". We infer therefrom that Children's has made a wise choice to affiliate with MMCI, perhaps the wisest choice that could be made at this time.
  - e. We note the strong emphasis throughout the Report that "the new HCGH should be developed as an integral component of an effective and coordinated health care system for the entire community" (p. 56) ... and, better, in the context of a 7-county system (p. 129 et seq.) and even better in the broader context of regional and state-wide plans (Exhibit XXXV (4)). Because Children's

has already planned to serve more than just Minneapolis or Hennepin County, but to serve a much larger area, we obviously heartily concur. Children's therefore, also commits itself to be "an integral component of an effective and coordinated health care system for the entire community".

- f. We believe that if such functional commitments are mutually made by all members of the health services community, then such details as geographic location of the components may become mutually irrelevant, and Children's, therefore, pledges itself to cooperate and work very closely with HCGH in all aspects of HCGH's programs. For example:

If the Pilot City project can be operated effectively as a satellite to HCGH (pp. 28, 29, 77) and if ".... the HCGH medical staff might support the resources .... personnel and/or facilities of Minneapolis Medical Center, Inc. ... in Model Neighborhood" (pp. 28, 77, 88), then it appears to us that a modus operandi is implied whereby considerable pediatrics activities of HCGH could be carried on at Children's even if Children's is located a mile from HCGH at MMCI, and that a satellite out-patient activity of Children's might be operated in conjunction HCGH in the Pilot City clinic (Children's plans satellites just as HCGH does), even though none of these facilities are within walking distance of each other.

- g. As the Report points out, no single location is perfect for all purposes because health services must be delivered at many points in the community. Therefore, the interinstitutional and inter-personal functional relationships and commitments must become the important objectives, and the physical convenience of the deliverers is not paramount to the convenience of the total community which will require delivery at many points (neighborhood centers or satellites) as practical to the community's needs.
18. The University emphasized the expanding role of the Department of Pediatrics as a regional child care center and made the following points:
- a. A pediatric cardiology program using monitors interfaced with a computer is being developed.
  - b. An intensive care unit for children has been provided.
  - c. A regional emergency service using a plane and helicopter is operating at no cost to the patient to make University resources available to infants in distress within a matter of a few hours.
  - d. The general pediatric surgery program has grown to a point where 40-50 cases are operated each month, often with the services of practicing pediatric surgeons from the community.

19. The Committee recognizes that the Hospitals and Clinics are part of an overall plan. Viewed in context with the total plan, we would make the following observations:
- a. This proposed facility services the largest and broadest base clinical education center in the State, currently serving 2,200 to 3,500 health science students. The proposed development program will increase the number to 5,600 health science students.
  - b. The University is to be commended for being among the first in the country to launch a family practice program. The Hospitals' close partnership with family practice in developing a prepayment program will be of interest for the community, is consistent with University Hospitals' role of experiment, and be innovative.
  - c. Historically, the University has been among leaders in the production of physicians in general practice.
  - d. The production and use of associated health manpower has historically been imaginative and responsive.
  - e. The production and use of associated health manpower has been exemplary. The University has provide leadership in the areas of physical therapy, occupational therapy, audiology, clinical psychology et cetera. More needs to be done. It is noted that new programs are proposed in the areas of: 1) bioengineering, 2) biomedical data processing information retrieval, 3) electroencephalography technicians, 4) inhalation therapy, 5) medical art, 6) medical record librarians, 7) medical social work.
20. It is noted that this is not a proposal for the hospitals or medical school only but involves the total spectrum of health sciences professionals. It is an unusual program in this regard and of some urgency because of the apparent limitations now imposed with units at capacity levels. Ideally, the building proposal should have been presented two or four years ago to allow for continuous growth and development.

Study Committee Conclusions:

1. The University Hospitals Development Program is an integral part of the total Health Sciences Development Program which has been imaginatively designed to meet current needs for replacement, remodeling and addition of facilities; which incorporates the concept of team medicine in its architectural design; and which provides flexible adaptation to meet future needs.
2. The overall land use and various transportation schemes are designed to alleviate one of the University's most pressing problems - that of access to the Health Sciences Center. These schemes appear fundamental to the full and appropriate use of the facilities and programs proposed in this expansion project.
3. The size and scope of the development appears compatible with the University's expressed intent to place greater reliance on community clinical resources located away from the main campus for training of health manpower. Both inpatient and ambulatory facilities expansion are in keeping with the growth of specialty services best provided at the University and in keeping with appropriate emphasis on community service. The expansion is considerable less than would be commensurate with the increase in student enrollment.
4. That criteria used to review community hospital proposals are not particularly germane to the University Hospitals because of University Hospitals' regional characteristics and unique education and research responsibilities. This development program is not incompatible with any community hospital programs that have been presented to PAHMM for review and evaluation. However, the Study Committee does not wish to imply that University programs are unique in the sense that community evaluation of such programs through the planning process is unnecessary.

\* \* \* \*

General Recommendations:

1. That expansion of the School of Nursing enrollment from 399 in 1967, to 550 in 1973 and 710 in 1986 be reevaluated in the context of finding 4 (d) which states that enrollment should reflect demonstrated needs. The Study Committee feels that community needs suggest large future enrollment.

The Committee also feels that the School of Nursing should become more community oriented and provide leadership and perhaps affiliations which would strengthen the various collegiate, diploma and associate degree programs in nursing throughout the state. Other paramedical programs should also be reviewed in light of this recommendation.

2. That the University continue to expand pediatric programs on the Minneapolis campus to meet regional needs for children's health services and that these efforts be appropriately related to community based pediatric programs with the fullest possible coordination between University faculty and practicing pediatricians. The Committee feels that it is in the best interests of the community, the University, the Children's Health Center, St. Paul Children's Hospital, St. Paul-Ramsey Hospital, Hennepin County General Hospital and others to develop coordinated education programs and community service programs in pediatrics which complement each other rather than encourage competition. To this end it appears necessary for the various parties to meet and discuss common interests and program development so that appropriate coordination and integration of pediatric programs will occur.
3. That the University continue to emphasize affiliation agreements with community health agencies, especially hospitals, as the most appropriate way to expand enrollment in health sciences and to support high quality service programs.
4. That the State Legislature be made aware of these findings and recommendations to the end that State support of the University Health Sciences will be commensurate with the demonstrated needs.

**Specific Recommendation:**

That the University Hospitals' development within the University Health Sciences development program be approved as submitted.



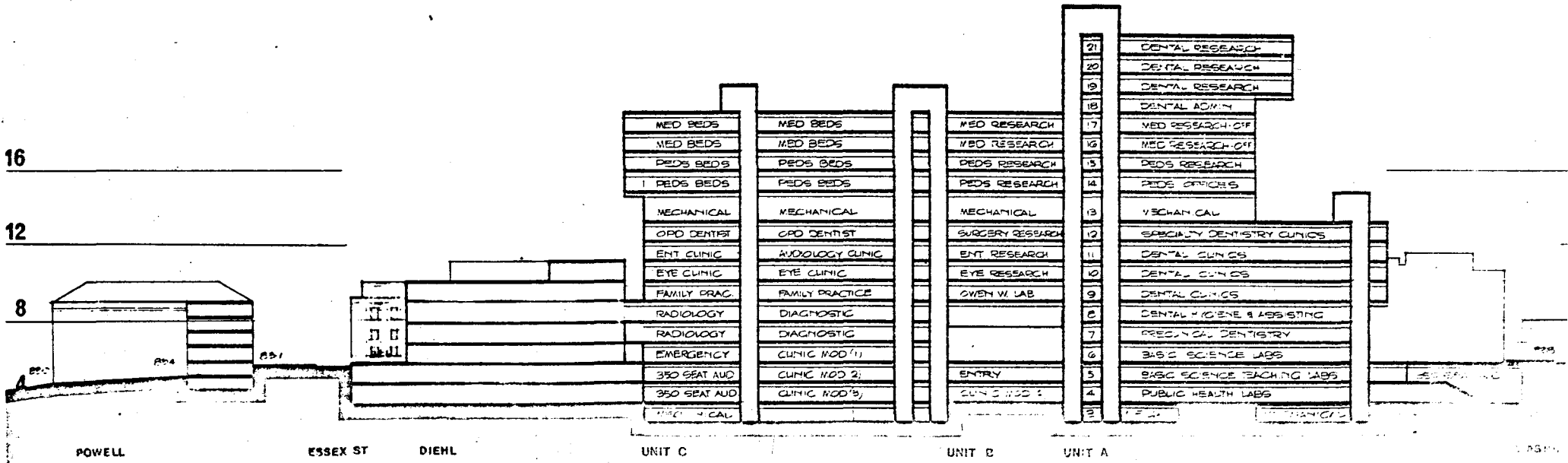
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POWELL

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UNIT A

WASHINGTON

SECTION AA NORTH-SOUTH THRU UNITS A,B,C.



## PART TWO

### Section A, Master Campus and Site Plan

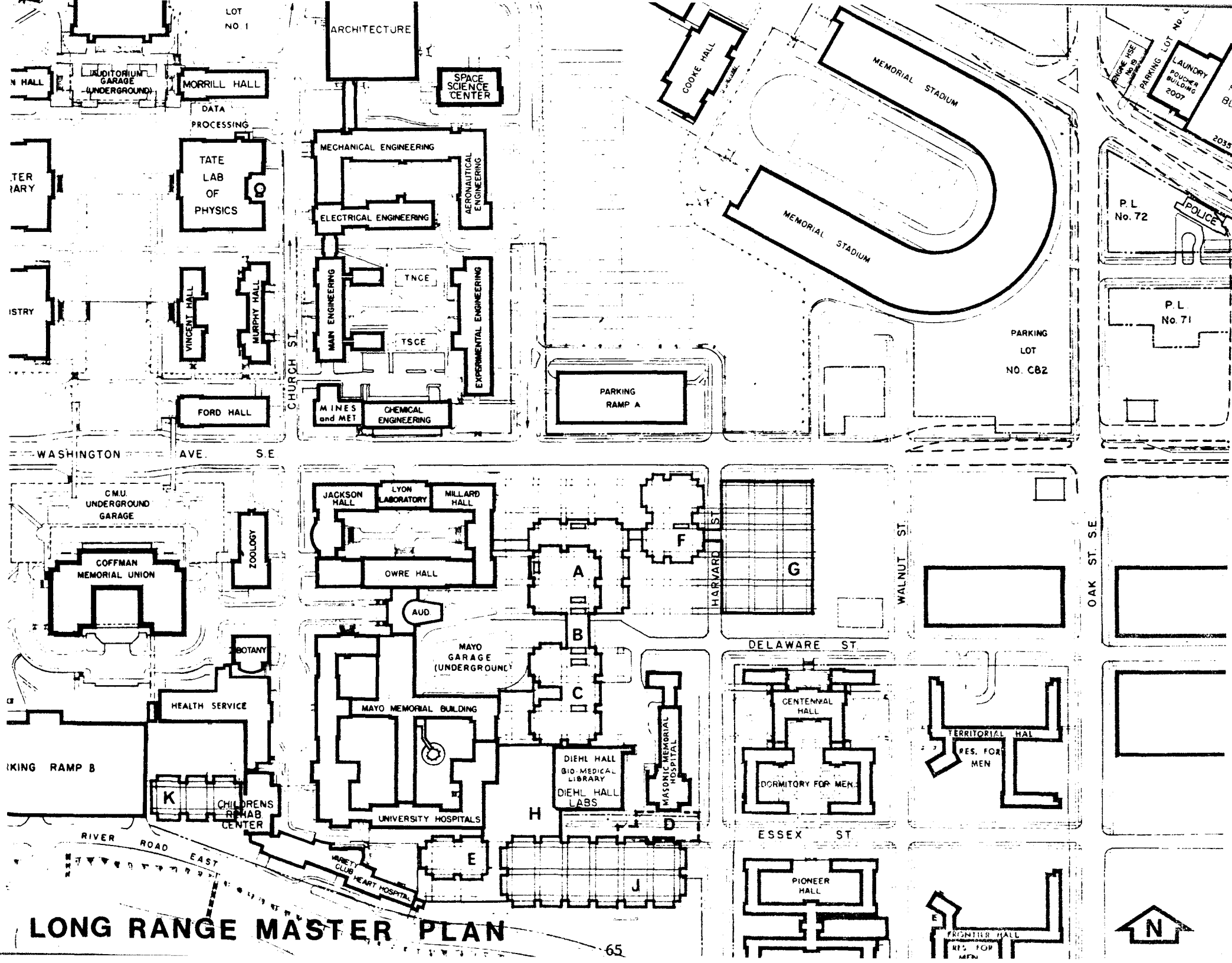
#### 1. Long Range Master Plan

Foreseeable expansion of the Health Sciences beyond the Phase I planned program for completion in 1975 includes: new facilities for the School of Public Health, Unit G; expanded facilities for the Basic Sciences; new cardio-vascular research facilities, Unit K; and a new hospital, Units J and H, to replace beds now located in the existing Mayo Building.

Space vacated by these beds and other hospital functions will be remodeled and used for expansion in the areas of clinical teaching and research, student study spaces, faculty and administrative offices.

The University has prepared a long-range plan for parking and circulation on the Twin Cities Campus. The Health Sciences facilities program includes provision of a 3,000 car parking ramp which will be constructed simultaneously with the construction of Unit A. This ramp has first priority in the implementation of the overall parking plan. The University is also cooperating with the Metropolitan Transit Commission and other agencies to develop improved public transportation for the area. Among the possibilities under consideration, is a prototype transit system serving the University needs specifically.

A long-range plan for housing is now in preparation and although a high proportion of student and staff housing will, of necessity, be provided by the private sector, it is likely that the plan will include some University owned apartments or town houses in the vicinity of the Health Sciences facilities.



# LONG RANGE MASTER PLAN



## PART TWO

### Section A

#### 2. Environmental Control

The University Health Service is the official Health Agency for the University and consequently, has responsibility for the surveillance of the physical environment.

The Division of Environmental Health and Safety is composed of a team of specialists in Industrial Health, Sanitation, Safety, Microbiology, Public Health Engineering and Health Physics. All of these specialists work in protecting the University community from the hazards of the physical environment.

All waste from toxic materials, explosive chemicals, and flammable solvents are collected once a week and taken to the University's Research Center at Rosemount, Minnesota for treatment and disposal.

All radioactive wastes are collected in the laboratory in yellow waste containers which are labeled to indicate whether the waste is combustible or non-combustible. When the waste containers are full, the radioisotope user contacts the Health Physicist and requests disposal service. The storage facility, used for temporary storage of radioactive waste is located at the University Rosemount Research Center. This facility is a brick storage building 36 feet long, by 19 feet wide, by 15 feet high, surrounded by a cyclone fence and posted in accordance with Title 10, Part 20, Section 20.203 of the Federal Regulations. Stored waste is picked up periodically by a commercial waste disposal firm which transports it to an Atomic Energy Commission (AEC) approved burial ground for final disposal.

All combustible waste is collected and taken to the University incineration facility which is located approximately  $\frac{1}{2}$  mile from the Health Science Complex. The incinerator has two reciprocating grate stokers, with a loading capacity for each unit of 50 tons per day. The high temperature combustion gases are conducted to the 225 foot high incinerator stack.

All animal carcasses are put in plastic bags and transported from the research laboratory to the cold room, to the incinerator each morning after a consuming fire has been established. After the furnace has cooled, the ash residue is dumped from the animal hearth onto the grate for removal to the waiting truck.

University Plant Services are now able to continuously monitor the stack to evaluate the efficiency of combustion.

Sewage of the University of Minnesota is discharged into the sewers of the City of Minneapolis, then to the sewage treatment plant of the Minneapolis-St. Paul Sanitary District where secondary treatment is provided.

PART TWO

Section B Building Function

1. Present Criteria for Space Determination

Allocation of space within the University is administered by the Office of Space Allocation and Scheduling. This office operates under a set of policy guidelines established with the counsel and advice of a faculty advisory committee. Actual allocations are based upon the guidelines as modified by statements of programmatic needs by faculty and administrators at the Departmental and Collegiate levels. Examples of the guidelines are:

faculty guidelines---130 assignable square feet  
classroom student station---15 assignable square feet  
study room station---25 assignable square feet

## PART TWO

### SECTION C CURRENT FACILITIES

#### 1. DESCRIPTION OF CURRENT FACILITIES OCCUPIED BY THE UNITS IN STEP 1 OF THE HEALTH SCIENCES EXPANSION

The School of Dentistry currently occupies 63,190 SFN of space located in Owre, Jackson-Owre, and Millard Hall. Basic Science Teaching Laboratories, except for Microbiology, are located in Millard and Jackson Hall. The remainder of Biochemistry, Pathology, Pharmacology, and Physiology Departmental space is located in Millard and Jackson, as well as Owre, Jackson-Owre, and Lyon. Microbiology Teaching Laboratories are on Mayo 2 and Departmental facilities are on Mayo 9 and 10 and Diehl 1.

The Medicine Department currently has space in Mayo, Diehl Hall, Variety Club Heart Hospital, Masonic Hospital, and the VFW Unit. Pediatrics has space in Mayo, Masonic, Diehl, and Variety Club Heart Hospital, as well as 608 Oak Street and 512 Delaware Street.

Existing Medical Student Adytum is located on Mayo, first floor. Public Health space for Physiological Hygiene is currently located in the University Stadium. Epidemiology Department space is in Mayo Tower.

TABULATION OF CURRENT FACILITIES

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SCHOOL OF DENTISTRY

	<u>To Be Vacated</u>	<u>Existing To Remain</u>	<u>Existing Total</u>
Owre, Basement	5,606	-	5,606
Owre, First Floor	5,461	-	5,461
Owre, Second Floor	10,341	-	10,341
Owre, Third Floor	13,274	-	13,274
Owre, Fourth Floor	9,065	-	9,065
Owre, Fifth Floor	4,590	-	4,590
Jackson-Owre, Basement	4,390	-	4,390
Jackson-Owre, First Floor	3,985	-	3,985
Jackson-Owre, Third Floor	4,446	-	4,446
Millard, Third Floor	2,032	-	2,032
TOTAL, SCHOOL OF DENTISTRY	63,190	-	63,190

SCHOOL OF MEDICINE

	<u>To Be Vacated</u>	<u>Existing To Remain</u>	<u>Existing Total</u>
BIOCHEMISTRY DEPARTMENT			
Millard, Basement	-	4,463	4,463
Millard, Second Floor	4,336	6,517	10,853
Lyon, Sub-basement	-	1,197	1,197
Lyon, First Floor	-	5,392	5,392
Owre, Basement	-	1,490	1,490
TOTAL, BIOCHEMISTRY DEPARTMENT	4,336	19,059	23,395
MICROBIOLOGY DEPARTMENT			
Mayo, Second Floor	5,300	1,488	6,788
Mayo, Ninth Floor	-	6,924	6,924
Mayo, Tenth Floor	-	7,213	7,213
Diehl, First Floor	-	1,458	1,458
TOTAL, MICROBIOLOGY DEPARTMENT	5,300	17,083	22,383
PATHOLOGY DEPARTMENT			
Jackson, Basement	1,491	742	2,233
Jackson, First Floor	3,954	2,343	6,297
Jackson, Fourth Floor	-	5,291	5,291
Diehl, Sixth Floor	-	746	746
Lyon, Basement	-	388	388
Lyon, Third Floor	-	5,442	5,442
Jackson-Owre, Fourth Floor	-	5,502	5,502
Mayo, First Floor	-	925	925
TOTAL, PATHOLOGY DEPARTMENT	5,445	21,359	26,804

SCHOOL OF MEDICINE Cont.

	<u>To Be Vacated</u>	<u>Existing To Remain</u>	<u>Existing Total</u>
PHARMACOLOGY DEPARTMENT			
Millard, Basement	-	4,387	4,387
Millard, First Floor	918	5,069	5,987
Lyon, Sub-basement	-	1,349	1,349
Lyon, Basement	-	1,015	1,015
Lyon, Second Floor	-	4,555	4,555
Diehl, Second Floor	-	1,894	1,894
TOTAL PHARMACOLOGY DEPARTMENT	918	18,269	19,187
PHYSIOLOGY DEPARTMENT			
Lyon, Sub-basement	-	3,176	3,176
Lyon, Fourth Floor	-	5,169	5,169
Millard, Third Floor	4,533	4,318	8,851
Millard, Fourth Floor	319	14,763	15,082
TOTAL, PHYSIOLOGY DEPARTMENT	4,852	27,426	32,278
MEDICINE DEPARTMENT			
Mayo, First Floor	547	144	691
Mayo, Second Floor	-	1,181	1,181
Mayo, Third Floor	4,454	1,443	5,897
Diehl, First Floor	4,421	-	4,421
Variety Club, First Floor	-	384	384
Variety Club, Second Floor	-	1,416	1,416
Variety Club, Fourth Floor	-	4,013	4,013
Masonic Hospital, Fourth Floor	-	2,593	2,593
VFW, Fourth Floor	-	3,018	3,018
TOTAL, MEDICINE DEPARTMENT	9,422	14,192	23,614



SCHOOL OF MEDICINE Cont.

	<u>To Be Vacated</u>	<u>Existing To Remain</u>	<u>Existing Total</u>
PEDIATRICS DEPARTMENT			
Mayo, First Floor	-	195	195
Mayo, Second Floor	180	2,826	3,006
Mayo, Fourteenth Floor	5,531	-	5,531
Mayo, Fifteenth Floor	2,288	-	2,288
Masonic, Fourth Floor	-	1,980	1,980
Diehl, First Floor	-	3,315	3,315
Diehl, Sixth Floor	-	2,930	2,930
Variety Club, Second Floor	-	3,386	3,386
Variety Club, Fourth Floor	-	989	989
Variety Club, Fifth Floor	-	4,004	4,004
608 Oak Street	-	2,112	2,112
512 Delaware Street	-	395	395
TOTAL, PEDIATRICS DEPARTMENT	7,999	22,232	30,231
MEDICAL SCHOOL ADYTUM			
Mayo 1	-	4,836	4,836
TOTAL, MEDICAL SCHOOL ADYTUM	-	4,836	4,836

SCHOOL OF PUBLIC HEALTH

	<u>To Be Vacated</u>	<u>Existing To Remain</u>	<u>Existing Total</u>
DEPARTMENT OF PHYSIOLOGICAL HYGIENE			
Stadium	-	10,881	10,881
TOTAL, PHYSIOLOGICAL HYGIENE	-	10,881	10,881
DEPARTMENT OF EPIDEMIOLOGY			
Mayo, Eleventh Floor	2,470	-	2,470
TOTAL, EPIDEMIOLOGY DEPARTMENT	2,470	-	2,470

SHARED CLASSROOMS

	<u>To Be Vacated</u>	<u>Existing To Remain</u>	<u>Existing Total</u>
Owre, Basement	-	3,773	3,773
Owre, First Floor	2,176	-	2,176
Millard, Second Floor	-	1,266	1,266
Jackson, Basement	-	1,386	1,386
Jackson, First Floor	-	2,014	2,014
Mayo Auditorium	-	2,754	2,754
TOTAL SHARED CLASSROOMS	2,176	11,193	13,369

### AREAS TO BE REPLACED

The construction of Unit A in step 1 will necessitate the replacement of a building on the site at 305 Union Street, which now houses 4872 SFN of the Department of Surgery. These animal research facilities and animal quarters will be located in temporary quarters until additional space is available for surgery in Unit B and Mayo Building, at the completion of steps 2 and 3 of the expansion

### FUTURE USE OF SPACE TO BE VACATED

#### SCHOOL OF DENTISTRY

Existing space now occupied by the School of Dentistry in Owre, Jackson-Owre, and Millard Hall will be vacated for reuse by other Health Sciences functions. The remodeling of these areas will be included in steps 2 and 3 of this expansion. The School of Nursing will occupy Dentistry space vacated in the basement and first floor of Owre and Jackson-Owre. The Department of Pharmacology expansion for laboratories and offices will be housed in space vacated on Owre, second and third floors and Millard, third floor, and the Departments of Pathology and Physiology will occupy space vacated on Owre, fourth and fifth floors.

#### SCHOOL OF MEDICINE

The existing teaching laboratories for Biochemistry, Pathology, Pharmacology, and Physiology in Millard and Jackson will be vacated at the completion of Unit A and be remodeled for expansion of the departmental space of Biochemistry, Pharmacology, Anatomy, Biochemistry and Physiology. Vacated space will also provide expansion of existing Anatomy Teaching Laboratories. Existing Microbiology Teaching Laboratories on Mayo 2 will be vacated and remodeled for expansion of the Department of Laboratory Medicine in step 3.

Space vacated by the Department of Medicine on Mayo 1 will be reassigned to the Department of Physical Medicine. Mayo, third floor Medicine space will be remodeled for expansion of the Departments of Neurology and Orthopedic Surgery. Diehl, first floor space to be vacated will house the expansion for Microbiology, Radiology and Neurosurgery. Pediatrics

SCHOOL OF MEDICINE con't.

Department space on Mayo 14 and 15 will be remodeled for expansion of the Microbiology Department.

SCHOOL OF PUBLIC HEALTH

Public Health space occupied by Epidemiology on Mayo 11 will be vacated to provide space for the Environmental Health Department.

## PART TWO

### Section D, Proposed Facility

#### Detailed Description of Step I, Unit A:

Unit 'A' will consist of twenty floors of space. Three of these floors are below ground level. The remaining rise 17 stories above the street. (See cross section in lap set). A floor-by-floor description of functions in Unit 'A' is as follows:

#### Basement

This level will provide the primary location for major mechanical components serving the new construction. Initially, this mechanical area will occupy the basement of Unit 'A'. It will be expanded under Units 'B' and 'C' in subsequent steps. Steam from the University Central Plant will be piped via deep tunnel system to a reducing station on this level. Switch gear pumps, chillers and emergency generating equipment will also be located on floor 10. Major utilities will be distributed in vertical utility shafts located on 50-foot grid to all floors. Building and plant services will also occupy space on this level.

#### Floor 1

The central service corridor for the Health Sciences at this level connects the various elements and provides vertical service access to the new units. Other major elements are: the lower level of a major shared teaching auditorium, a Medical School Student Adytum, a supply, storage and receiving area and Public Health space for the divisions of Physiological Hygiene and Epidemiology. The Epidemiology division of the School of Public Health provides offices and workrooms for administrative procedures and provides research laboratories, offices (faculty, graduate and field personnel), statistical analysis rooms and the accompanying support areas for graduate teaching and research.

The Laboratory of Physiological Hygiene which provides graduate teaching and research is organized to accommodate visiting test subjects and their related procedures. Subjects enter and go either to the general office and its related faculty offices or directly to the physiology test and exam stations. Subjects do not enter the chemical laboratories although the laboratories relate to the staff and students in both the general office and physiology areas. In general, the central spaces of both divisions are designed for flexibility with fixed support functions around the perimeter. Epidemiology and Physiological Hygiene share conference rooms, a reference and reading room, a clean and sterile room and a shop.

Service to both divisions will be by means of the main service corridor located on this level. Public access from the information and lobby area on floor 2 will be by either bank of elevators that border the space or by stairs.

#### Floor 2

This level of Unit 'A', one floor below street level is the main public, student, and staff entry and circulation level. Major shared teaching spaces including one-350,

two-250, and one-200-seat auditoria, smaller classrooms, one for 100 and three for 50 students, seventeen seminar rooms for 15 and 20 students, Department of Pathology reference and study area, a student supply area, and a student-study and lounge are located on this level.

Microbiology and Biochemistry undergraduate teaching labs and support areas are convenient to major student circulation areas permitting direct access to the Basic Science research and departmental areas in adjacent existing buildings.

The undergraduate teaching facilities for Microbiology would consist of three teaching laboratories for 50 students each, a demonstration area and support areas for glass preparation, washing, sterilizing, media preparation, incubators and storage. Undergraduate teaching laboratories for Biochemistry include three 32-student teaching laboratories which can be sub-divided into smaller labs of 16 students each, one 24-student lab, centrally placed instrument and preparation rooms, cold rooms, a demonstration room, supply rooms, and small office and darkroom.

When Washington Avenue is tunnelled, an entrance at the north end of Unit 'A' will provide direct access from a public transit drop-off point.

#### Floor 3, Ground Level

Unit 'A' at street level is occupied by Pathology, Physiology, Pharmacology, Basic Science undergraduate teaching laboratories and supporting facilities. A street level entrance on Delaware Street provides public access to Dental clinics located on upper levels of Unit 'A'.

Physiology teaching facilities include six 24-student laboratories, a large preparation and stock room as well as a special instrument room to serve the laboratories, and a 150 seat demonstration room shared with Pharmacology. Pharmacology teaching facilities consist of six 24-student laboratories, cold rooms, dispensing area, instrument rooms, and active storage. Teaching facilities for Pathology consist of four 28-student labs each equipped with dry lab benches and wall storage cabinets for microscopes and slide boxes. Additional support facilities include a lab for tissue staining and embedding, a gross specimen museum and storage areas for teaching materials.

#### Floor 4

This floor will house the preclinical teaching facilities of the School of Dentistry. Twelve multipurpose laboratories each seating 25 students will be used for laboratory courses in the Pre-clinical Dental Sciences. All of these rooms will be equipped with closed circuit TV for lectures and demonstrations and will be designed for the use of audio-visual materials. These areas will also be utilized for seminars. Supporting laboratory service rooms, equipment storage space, and a technicians laboratory will be accessible from the laboratories. Freshman and sophomore locker facilities and offices for the pre-clinical faculty will also be located on this floor. Other facilities on the fourth floor will include seminar and auto-tutorial rooms, a general study-lounge for dental students, and a reference-reading room to serve both faculty and students in dentistry. Non-faculty staff lounge-locker facilities will also be located on this floor.

## Floor 5

This floor will contain multi-purpose dental laboratories, a multi-purpose laboratory lecture room to seat 78, and supporting areas which will be shared by dental students in the pre-clinical and clinical years. These will also be used on a space available basis for Continuing Dental Education and to some extent the training of dental assistants and dental hygienists. This auxiliary training program will be integrated very closely with the education of the dental students. These facilities include three multi-purpose laboratories each seating 50 students, equipped for teaching clinical laboratory techniques to dental students, assistants, and hygienists. The rooms will be equipped for closed circuit TV with multiple monitors. There will also be supporting laboratories adjacent to the multi-purpose laboratories equipped for plaster work, casting, and burnout procedures. Other spaces include faculty offices and a demonstration room with tiered seating for 32 people. This room will be provided with clinical and laboratory equipment to permit small group demonstrations.

This floor will also include locker facilities for the clinical faculty, junior and senior dental students, dental assistants, and dental hygienists.

## Floor 6

This is one of four clinical floors for dentistry and will be the major location for the Divisions of Oral Diagnosis and Oral Surgery. The surgical facilities for Oral surgery, Endodontic surgery, and Periodontic surgery are concentrated in one area. A 27-operatory unit of the multi-purpose undergraduate clinic will be on this floor. This unit will be used primarily for undergraduate teaching in Periodontics and Endodontics. Supporting areas include a demonstration operatory, a sterilization room, a student clinical laboratory, and a conference room. Periodontic staff offices will be located nearby.

Clinical facilities for Oral Diagnosis will include 15 dental operatories for the screening of patients, treatment planning, and the teaching of Oral Diagnosis techniques to undergraduate dentistry students and auxiliaries. Supporting facilities will include consultation rooms, a larger operatory for small group demonstrations, a room for instrument sterilization and dispensing of supplies, a clinical lab, and a small plaster room.

With the exception of one or two x-ray rooms on each of the other clinical levels, all facilities for Radiology and film processing will be centralized on this floor, furnishing x-ray services for Oral Diagnosis and all other clinical units of the School of Dentistry. In addition, this area will be used for the teaching of x-ray procedures to undergraduate dental students and auxiliaries. Spaces will include sixteen rooms for instruction in x-ray procedures, special x-ray rooms for wheelchair patients, extra-oral, panoramic and cephalometric procedures, an x-ray demonstration room, processing, mounting, and viewing rooms, and an x-ray equipment laboratory.

Reception and waiting areas, staff offices and conference rooms for Oral Diagnosis and Radiology will also be located on this floor.

Oral Surgery operatories will be clustered around an interior sterile corridor immediately accessible to and supporting sterilization and tray preparation areas. This cluster will include 10 surgical operatories and two larger demonstration rooms. A similar, adjacent cluster will be used for Endodontic and Periodontal surgery procedures. Supporting areas will include a recovery room, examining rooms, and a clinical



service laboratory. Faculty offices for the Division of Oral Surgery will also be located here. Appropriate waiting areas will accommodate patients for the multi-purpose and surgical clinics.

#### Floors 7 and 8

These two floors will contain the primary undergraduate clinical facilities of the School of Dentistry. On each floor 112 multi-purpose operatory cubicles will be arranged in four units of 28, flanking a central waiting and reception area. These operatories will be used for undergraduate instruction in Endodontics, Crown and Bridge, Prosthodontics, Periodontics, and Operative Dentistry procedures, facilitating the team approach to comprehensive dental care.

Supporting areas will be primarily located around the perimeter of each floor along a separate service corridor. They will include demonstration operatories, sterilization rooms, student laboratories, a technical laboratory, and faculty offices. Each floor will also have lounge-study areas for students and areas for informal faculty-student discussion, and a central grouping of teaching spaces which will include two conference rooms, a seminar-reading room, and a number of auto-tutorial carrels.

#### Floor 9

Specialty clinical teaching areas for the School of Dentistry will be located on this floor. These include undergraduate and graduate teaching programs in Orthodontics, Pediatric Dentistry, and the Cleft Palate - Maxillo-Facial program. Facilities for Continuing Dental Education will also be located on this floor.

The plan for this floor will be similar to the multi-purpose clinical levels with a central reception and waiting area surrounded by groups of operatories and a ring of supporting areas at the perimeter.

The Orthodontic Clinic will have 44 operatories, with interconnecting doors to facilitate team practice by students working with auxiliary personnel. Supporting areas will include demonstration operatories, a sterilization room, a conference room, faculty offices, and a technicians' laboratory to serve all clinical units.

The Pediatric Dentistry Clinic will have 44 operatories arranged similarly, with supporting areas for demonstration, sterilization, staff offices, student laboratories and study rooms. In addition, there will be consultation rooms where individual treatment programs will be discussed with parents, and a conference room for audio-visual demonstrations on dental health care for waiting parents and children. Separate reception and waiting areas will be provided for Orthodontics and Pediatric Dentistry.

Facilities for Continuing Dental Education will include eight dental operatories with a demonstration operatory, clinical laboratory, and an adjacent sterilization room. There will be a small reception and waiting area, an office for the director and an assembly room for seminar groups of up to 75 people.

The Cleft-Palate-Maxillo-Facial Clinic will be located adjacent to the Orthodontics Clinic and will include a small waiting room and four clinical operatories with adjoining offices. This Clinic will also include speech therapy rooms and examining rooms with adjacent rooms for observation, supporting clinical laboratories, a conference room for team interviews and treatment planning, and offices for the director and a secretary-receptionist.

#### Floor 10

Mechanical space will occupy this entire floor.

#### Floor 11

This floor will house the Department of Pediatrics, laboratories and supporting facilities. These modular laboratories are located on the same floor as other future Pediatric laboratory and clinical facilities which will be built in Units 'B' and 'C' as a part of Step 2. Other sections of Pediatrics will remain in existing facilities.

#### Floor 12

Administrative offices, faculty offices and conference rooms for the Department of Pediatrics will be located on this floor. The concentration of offices for the head of the department and 26 senior faculty will provide for maximum interaction. Unit 'B' and Unit 'C', to be constructed in Step 2, will provide additional clinical and laboratory facilities at the same floor level.

#### Floor 13

The Department of Medicine on this floor has modular laboratories with supporting facilities which include cold rooms, equipment rooms, and a glass-washing room. Related section office modules will contain three 1-man faculty offices, two 2-man junior faculty offices and one secretarial office.

#### Floor 14

Additional laboratory facilities and related section office modules of the Department of Medicine are located on this floor. The departmental offices and a major conference room for teaching will be located on the same floor of Unit 'B'. The clinical facilities of medicine will be located on the same floor of Unit 'C'.

#### Floor 15

This floor will house the administrative offices of the School of Dentistry including the offices of the dean and assistant deans. Adjacent to and connecting with these offices will be the Business and Accounting offices. The remaining areas will be used for a faculty lounge and the Division of Health Ecology. A series of small office interview rooms with centrally located reception and waiting areas will be included. In addition, there will be a large data collection room and conference and seminar rooms for groups of up to 60 people.

#### Floor 16

This floor will contain faculty offices and laboratories for Oral Pathology, Biomaterials, Biostatistics, Speech Pathology and Oral Genetics. There will be supporting facilities including storage, service areas, instrument rooms, cold rooms, and

special purpose spaces, and a conference room to be shared by all disciplines.

This floor will also house photographic and television facilities for the production of educational materials including studios for photography, television and motion pictures, a control room equipped for sound recording, dark rooms, work rooms, and a library for audio-visual materials.

#### Floor 17

This floor will house faculty offices and laboratories for Oral Physiology and Oral Biology with associated special purpose rooms. In addition, there will be laboratories and offices for programs of research training to be conducted by the various clinical disciplines.

#### Floor 18

This floor will contain faculty offices and laboratories for Microbiology and Biochemistry, with associated special purpose rooms, including facilities for electron microscopes. Additional space for research training by clinical disciplines will also be available.

#### Floor 19

This floor will be for animal facilities for the School of Dentistry. There will be rooms for housing animals involved in on-going research and research training, a germ-free room, operating rooms and supporting areas for cage washing, diet preparation and storage.

PART TWO

Section D Proposed Facilities

ROOM-BY-ROOM TABULATION OF NET ASSIGNABLE AREAS IN STEP 1

SCHOOL OF MEDICINE

TOTAL 35,431

DEPARTMENT OF PEDIATRICS

TOTAL 15,935

ROOM	NAME	MEDICAL TEACHING	MEDICAL RESEARCH	TOTAL NET S. F.
A11-101	ISOTOPE LABORATORY	127	85	212
A11-103	LABORATORY	261	174	435
A11-104	LABORATORY	270	180	450
A11-105	LABORATORY	261	174	435
A11-106	LABORATORY	135	90	225
A11-107	LABORATORY	135	90	225
A11-108	LABORATORY	270	180	450
A11-109	LABORATORY	135	90	225
A11-110	LABORATORY	260	174	434
A11-111	LABORATORY	130	87	217
A11-112	LABORATORY	270	180	450
A11-113	LABORATORY	130	87	217
A11-114	ELECTRON MICROSCOPE ROOM	72	48	120
A11-114A	DARK ROOM	58	39	97
A11-115	LABORATORY	260	174	434
A11-116	LABORATORY	130	87	217
A11-117	LABORATORY	130	87	217
A11-118	LABORATORY	260	173	433
A11-119	LABORATORY	259	173	432
A11-120	LOCKER ROOM	25	17	42
A11-121	SERVICE ROOM	84	56	140
A11-122	CLEAN-UP ROOM	256	170	426
A11-123	LABORATORY	259	173	432
A11-124	INSTRUMENT LABORATORY	259	173	432
A11-125	STERILE ROOM	256	170	426
A11-126	COLD ROOM	127	85	212
	TOTAL	4819	3216	8035

SCHOOL OF MEDICINE (CON'T)

DEPARTMENT OF PEDIATRICS (CON'T)

ROOM	NAME	MEDICAL TEACHING	MEDICAL RESEARCH	TOTAL NET S. F.
A12-100	RECEPTION	75	50	125
A12-101	OFFICE, CHIEF RESIDENT	62	42	104
A12-102	ACCOUNTING OFFICE	204	136	340
A12-103	OFFICE, EXECUTIVE SEC'Y	78	52	130
A12-104	OFFICE, CHAIRMAN	120	80	200
A12-105	CONFERENCE ROOM	156	104	260
A12-106	OFFICE, PRINCIPAL SEC'Y	84	56	140
A12-107	FACULTY OFFICE	72	48	120
A12-108	FACULTY OFFICE	72	48	120
A12-109	CLERICAL POOL	870	580	1450
A12-110	FACULTY OFFICE	72	48	120
A12-111	FACULTY OFFICE	72	48	120
A12-112	FACULTY OFFICE	72	48	120
A12-113	FACULTY OFFICE	72	48	120
A12-114	OFFICE, PRINCIPAL SEC'Y	76	50	126
A12-115	FACULTY OFFICE	72	48	120
A12-116	FACULTY OFFICE	72	48	120
A12-117	FACULTY OFFICE	72	48	120
A12-118	FACULTY OFFICE	72	48	120
A12-119	FACULTY OFFICE	72	48	120
A12-120	FACULTY OFFICE	72	48	120
A12-121	FACULTY OFFICE	72	48	120
A12-122	FACULTY OFFICE	72	48	120
A12-123	FACULTY OFFICE	72	48	120
A12-124	FACULTY OFFICE	72	48	120
A12-125	FACULTY OFFICE	72	48	120
A12-126	CONFERENCE ROOM	540	360	900
A12-127	CHAIR STORAGE	22	14	36
A12-128	PROJECTION BOOTH	14	10	24
A12-129	LOUNGE	161	107	268
A12-130	OFFICE, ACCOUNTANT	78	52	130
A12-131	OFFICE, ACCOUNTANT	78	52	130
A12-132	LOCKER ROOM	120	80	200
A12-134	FACULTY OFFICE	72	48	120
A12-135	FACULTY OFFICE	72	48	120
A12-136	FACULTY OFFICE	72	48	120
A12-137	OFFICE, PRINCIPAL SEC'Y	79	53	132
A12-138	OFFICE, PEDIATRICS ASSOCIATES	132	88	220
A12-139	DUPLICATING & STORAGE	351	234	585
	TOTAL	4740	3160	7900
	GRAND TOTAL - DEPARTMENT OF PEDIATRICS	9559	6376	15,935

SCHOOL OF MEDICINE (CON'T)

DEPARTMENT OF MEDICINE

TOTAL 15,541

ROOM	NAME	MEDICAL TEACHING	MEDICAL RESEARCH	TOTAL NET S. F.
A13-100	LABORATORY	300	202	502
A13-101	LABORATORY	256	170	426
A13-102	LABORATORY	256	170	426
A13-103	LABORATORY	305	204	509
A13-104	LABORATORY	301	201	502
A13-105	OFFICE	72	48	120
A13-106	OFFICE	72	48	120
A13-107	OFFICE	72	48	120
A13-108	OFFICE	72	48	120
A13-109	OFFICE	72	48	120
A13-111	GAS STORAGE	23	15	38
A13-112	SECRETARY	86	58	144
A13-113	OFFICE	72	48	120
A13-114	OFFICE	72	48	120
A13-115	OFFICE	72	48	120
A13-116	OFFICE	72	48	120
A13-117	SECRETARY	95	64	159
A13-118	OFFICE	72	48	120
A13-119	DARK ROOM	77	51	128
A13-120	BALANCE ROOM	77	51	128
A13-121	EQUIPMENT ROOM	507	338	845
A13-122	GLASS WASH CLEAN-UP	170	113	283
A13-123	GLASS PREP.	131	88	219
A13-124	LABORATORY	206	138	344
A13-125	LABORATORY	258	172	430
A13-126	LABORATORY	258	172	430
A13-127	COLD ROOM & FREEZER	171	114	285
A13-128	LABORATORY	260	174	434
A13-129	COLD ROOM	140	93	233
A13-130	UTILITY STATION	46	30	76
	TOTAL	4643	3098	7741

SCHOOL OF MEDICINE (CON'T)

DEPARTMENT OF MEDICINE

ROOM	NAME	MEDICAL TEACHING	MEDICAL RESEARCH	TOTAL NET S. F.
A14-100	OFFICE, SECRETARY	86	58	144
A14-101	INCUBATOR	41	27	68
A14-102	OFFICE	72	48	120
A14-103	OFFICE	72	48	120
A14-104	OFFICE	72	48	120
A14-105	OFFICE	72	48	120
A14-106	OFFICE	72	48	120
A14-107	LABORATORY	301	201	502
A14-108	LABORATORY	305	204	509
A14-109	LABORATORY	305	204	509
A14-110	LABORATORY	301	201	502
A14-111	OFFICE	72	48	120
A14-112	OFFICE	72	48	120
A14-113	OFFICE	72	48	120
A14-114	OFFICE	72	48	120
A14-115	OFFICE	72	48	120
A14-116	SECRETARY	86	58	144
A14-118	GAS STORAGE	23	15	38
A14-119	OFFICE	72	48	120
A14-120	OFFICE	72	48	120
A14-121	OFFICE	72	48	120
A14-122	OFFICE	72	48	120
A14-123	OFFICE	75	50	125
A14-124	SECRETARY	72	48	120
A14-125	ISOTOPE LABORATORY	97	65	162
A14-126	BALANCE	77	51	128
A14-127	INSTRUMENT ROOM	507	338	845
A14-128	LABORATORY	260	174	434
A14-129	LABORATORY	258	172	430
A14-130	LABORATORY	258	172	430
A14-131	COLD ROOM	156	104	260
A14-132	LABORATORY	260	174	434
A14-133	COLD ROOM	156	104	260
A14-134	UTILITY STATION	46	30	76
	TOTAL	4678	3122	7800
GRAND TOTAL FOR DEPARTMENT OF MEDICINE		9321	6220	15,541



SCHOOL OF MEDICINE (CON'T)

ROOM	NAME	MEDICAL TEACHING	MEDICAL RESEARCH	MEDICAL UNDERGRAD	TOTAL NET
<u>MEDICAL SCHOOL ADYTUM</u>				<u>TOTAL</u>	<u>3,955</u>
A1-102	VENDING	-	-	353	353
A1-103	TOILET	-	-	229	229
A1-104	LOCKERS	-	-	582	582
A1-105	LOUNGE-STUDY	-	-	2791	2791
	TOTAL	-	-	3955	3955

GRAND TOTAL FOR THE SCHOOL OF MEDICINE

18,880	12,596	3955	35,431
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PART TWO

Section D Proposed Facilities

NOTE: THE TERM "DENTAL TEACHING" IS USED TO IDENTIFY TEACHING SPACE FOR WHICH SEPARATE ALLOCATIONS FOR UNDERGRADUATE AND GRADUATE UTILIZATION HAVE NOT BEEN MADE. WHILE THESE AREAS WILL BE USED IN SUPPORT OF GRADUATE, AS WELL AS UNDERGRADUATE TEACHING PROGRAMS, THEIR ASSIGNMENT AS TEACHING SPACE IS BASED PRIMARILY ON THE FACT THAT THEY CONSTITUTE A NECESSARY PART OF A COMPLETE FACILITY FOR UNDERGRADUATE DENTAL EDUCATION. IN THE SUMMARY OF NET AREAS, THIS SPACE IS INCLUDED WITH "DENTAL UNDERGRADUATE TEACHING".

SCHOOL OF DENTISTRY

PRECLINICAL TEACHING FACILITIES

TOTAL 15,475

FLOOR 4

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A4-101	SEMINAR	305	305
A4-103	AUTOTUTORIAL STUDY	400	400
A4-105	PRECLINICAL DENTAL LABORATORY	920	920
A4-106	SUPPORTING LABORATORY	290	290
A4-107	PRECLINICAL DENTAL LABORATORY	920	920
A4-108	PRECLINICAL DENTAL LABORATORY	920	920
A4-109	SUPPORTING LABORATORY	290	290
A4-110	PRECLINICAL DENTAL LABORATORY	920	920
A4-122	GENERAL FACULTY OFFICE	370	370
A4-123	CONFERENCE	160	160
A4-124	FACULTY OFFICE	100	100
A4-125	FACULTY OFFICE	100	100
A4-126	FACULTY OFFICE	160	160
A4-127	FACULTY OFFICE	120	120
A4-128	PRECLINICAL DENTAL LABORATORY	1000	1000
A4-129	TECHNICIANS LABORATORY	190	190
A4-130	SUPPORTING LABORATORY	290	290
A4-131	PRECLINICAL DENTAL LABORATORY	1000	1000
A4-132	PRECLINICAL DENTAL LABORATORY	920	920
A4-133	SUPPORTING LABORATORY	290	290
A4-134	PRECLINICAL DENTAL LABORATORY	920	920
A4-135	PRECLINICAL DENTAL LABORATORY	920	920
A4-136	SUPPORT LABORATORY	290	290
A4-137	PRECLINICAL DENTAL LABORATORY	1000	1000
A4-138	STORAGE	190	190
A4-139	SUPPORTING LABORATORY	290	290
A4-140	PRECLINICAL DENTAL LABORATORY	1000	1000
A4-141	PRECLINICAL DENTAL LABORATORY	920	920
A4-142	SUPPORT LABORATORY	280	280
	TOTAL	15,475	15,475

SCHOOL OF DENTISTRY

MULTIPURPOSE LABORATORIES, DEMONSTRATION & SUPPORT TOTAL 10,975

FLOOR 5

ROOM	NAME	DENTAL UNDERGRAD	DENTAL AUXILIARY	TOTAL NET S. F.
A5-102	SEMINAR	290		290
A5-103	CLINICAL DEMONSTRATION	290	290	580
A5-104	SEMINAR	290		290
A5-121	MULTIPURPOSE LABORATORY	770	770	1540
A5-122	SUPPORT LABORATORY	125	125	250
A5-123	SUPPORT LABORATORY	125	125	250
A5-124	MULTIPURPOSE LABORATORY	770	770	1540
A5-125	STORAGE	140		140
A5-126	AUDIO-VISUAL PREPARATION	28	112	140
A5-127	FACULTY OFFICE	28	112	140
A5-128	FACULTY OFFICE	28	112	140
A5-129	MULTIPURPOSE LABORATORY	770	770	1540
A5-130	SUPPORT LABORATORY	125	125	250
A5-134	RECEPTION	30	120	150
A5-135	SECRETARIAL OFFICE	70	280	350
A5-136	DENTAL ASSISTING DIRECTOR	34	136	170
A5-137	DENTAL HYGIENE DIRECTOR	34	136	170
A5-139	DENTAL HYGIENE & ASSISTING FACULTY OFFICE	89	356	445
A5-140	MULTIPURPOSE LAB-LECTURE	2400		2400
A5-141	STORAGE	100		100
A5-142	STORAGE	100		100
	TOTAL	6636	4339	10975

SCHOOL OF DENTISTRY

MULTIPURPOSE CLINICS

TOTAL

58,995

FLOOR 6

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A6-107	AUTOTUTORIAL STUDY	110	110
A6-108	AUTOTUTORIAL STUDY	110	110
A6-148	FACULTY/STUDENT DISCUSSION ROOM	280	280
A6-179	STERILIZING (SHARED)	265	265
A6-180	SURGICAL OPERATORY	145	145
A6-181	SURGICAL OPERATORY	145	145
A6-182	RECOVERY	215	215
A6-183	SURGICAL OPERATORY	130	130
A6-184	SURGICAL OPERATORY	130	130
A6-185	SURGICAL OPERATORY	130	130
A6-186	SURGICAL DEMONSTRATION	215	215
A6-187	STORAGE	145	145
A6-188	SURGICAL OPERATORY	130	130
A6-189	SURGICAL OPERATORY	180	180
A6-190	X-RAY	60	60
A6-191	SURGICAL OPERATORY	180	180
A6-192	SURGICAL OPERATORY	130	130
A6-193	SURGICAL OPERATORY	180	180
A6-194	SURGICAL DEMONSTRATION	180	180
A6-195	STORAGE	70	70
A6-196	DRESSING	130	130
A6-197	SCRUB	65	65
A6-198	DRESSING	130	130
A6-199	SCRUB	65	65
A6-200	DISPENSING	160	160
A6-201	LOUNGE - STUDY	130	130
A6-202	LOUNGE - STUDY	130	130
A6-210	SECRETARY-PERIODONTICS	140	140
A6-211	CLINICAL CHIEF-PERIODONTICS	140	140
A6-212	FACULTY OFFICE-PERIODONTICS	280	280
A6-213	MULTI-PURPOSE OPERATORIES (4)	375	375
A6-214	MULTI-PURPOSE OPERATORIES (19)	1805	1805
A6-215	PART TIME FACULTY WORK AREA	70	70
A6-216	DEMONSTRATION	215	215
A6-217	STERILIZING	270	270
A6-218	STUDENT LABORATORY	290	290
A6-219	CONFERENCE ROOM	280	280
A6-220	AUTOTUTORIAL STUDY	160	160
A6-221	OPERATORY	100	100
A6-222	OPERATORY	100	100
A6-223	OPERATORY	100	100
A6-224	OPERATORY	100	100
A6-225	STORAGE	120	120
A6-226	RECEPTION	110	110
A6-227	COATS	50	50
A6-228	WAITING	650	650
A6-229	X-RAY	70	70
A6-230	DARK ROOM	20	20
TOTAL		9385	9385

## SCHOOL OF DENTISTRY

## MULTIPURPOSE CLINICS (CONTINUED)

## FLOOR 7

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A7-101	WAITING	1780	1780
A7-102	RECEPTION	160	160
A7-103	COATS	60	60
A7-104	COATS	60	60
A7-105	CONSULTATION	110	110
A7-106	X-RAY	60	60
A7-107	DARK ROOM	20	20
A7-108	STORAGE	250	250
A7-109	DEMONSTRATION	200	200
A7-110	AUTOTUTORIAL STUDY	160	160
A7-111	DEMONSTRATION	200	200
A7-112	FACULTY OFFICE	280	280
A7-113	FACULTY OFFICE	280	280
A7-114	STERILIZING	245	245
A7-115	DEMONSTRATION	215	215
A7-116	PART TIME FACULTY WORK AREA	70	70
A7-117	MULTI-PURPOSE OPERATORIES (28)	2660	2660
A7-118	CLINICAL LAB TECHNIQUE	375	375
A7-119	STUDENT LAB	555	555
A7-120	MULTI-PURPOSE OPERATORIES (28)	2660	2660
A7-121	PART TIME FACULTY WORK AREA	70	70
A7-122	DEMONSTRATION	215	215
A7-123	OFFICE-DIVISION HEAD	160	160
A7-124	SECRETARY	120	120
A7-125	STERILIZING	245	245
A7-126	FACULTY OFFICE	280	280
A7-127	STUDENT/FACULTY DISCUSSION ROOM	280	280
A7-128	STUDENT/FACULTY DISCUSSION ROOM	280	280
A7-129	STORAGE	120	120
A7-130	CONSULTATION	110	110
A7-131	CONSULTATION	110	110
A7-132	X-RAY	60	60
A7-133	DARK ROOM	20	20
A7-134	CONSULTATION	110	110
A7-135	CONFERENCE	280	280
A7-136	SEMINAR AND READING ROOM	570	570
A7-137	AUTOTUTORIAL STUDY	140	140
A7-138	AUTOTUTORIAL STUDY	140	140
A7-139	AUTOTUTORIAL STUDY	140	140
A7-140	CONFERENCE	280	280
A7-141	CONSULTATION	110	110
A7-142	X-RAY	60	60
A7-143	DARK ROOM	20	20
A7-144	CONSULTATION	110	110
A7-145	CONSULTATION	110	110
A7-146	STORAGE	120	120
A7-147	LOUNGE - STUDY	130	130
A7-148	LOUNGE - STUDY	130	130
A7-149	FACULTY OFFICE	280	280
A7-150	STERILIZING	245	245
A7-151	SECRETARY	120	120

SCHOOL OF DENTISTRY

MULTIPURPOSE CLINICS (CONTINUED)

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A7-152	OFFICE-DIVISION HEAD	160	160
A7-153	DEMONSTRATION	215	215
A7-154	PART TIME FACULTY WORK AREA	70	70
A7-155	MULTIPURPOSE OPERATORIES (28)	2660	2660
A7-156	STUDENT LABORATORY	570	570
A7-157	CLINICAL LAB TECHNIQUE	375	375
A7-158	TECHNICIANS LABORATORY	570	570
A7-159	MULTIPURPOSE OPERATORIES (28)	2660	2660
A7-160	PART TIME FACULTY WORK AREA	70	70
A7-161	DEMONSTRATION	215	215
A7-162	STERILIZING	245	245
A7-163	FACULTY OFFICE	280	280
A7-164	FACULTY OFFICE	280	280
A7-165	DEMONSTRATION	200	200
A7-166	AUTOTUTORIAL STUDY	160	160
A7-167	DEMONSTRATION	200	200
A7-168	STORAGE	120	120
A7-169	X-RAY	60	60
A7-170	DARK ROOM	20	20
A7-171	CONSULTATION	110	110
	TOTAL	24,805	24,805

SCHOOL OF DENTISTRY

MULTIPURPOSE CLINICS (CONTINUED)

FLOOR 8

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A8-101	WAITING	1780	1780
A8-102	RECEPTION	160	160
A8-103	COATS	60	60
A8-104	COATS	60	60
A8-105	CONSULTATION	110	110
A8-106	X-RAY	60	60
A8-107	DARK ROOM	20	20
A8-108	STORAGE	250	250
A8-109	DEMONSTRATION	200	200
A8-110	AUTOTUTORIAL STUDY	160	160
A8-111	DEMONSTRATION	200	200
A8-112	FACULTY OFFICE	280	280
A8-113	FACULTY OFFICE	280	280
A8-114	STERILIZING	245	245
A8-115	DEMONSTRATION	215	215
A8-116	PART TIME FACULTY WORK AREA	70	70
A8-117	MULTIPURPOSE OPERATORIES (28)	2660	2660
A8-118	CLINICAL LAB TECHNIQUE	375	375
A8-119	STUDENT LAB	555	555
A8-120	MULTIPURPOSE OPERATORIES (28)	2660	2660
A8-121	PART TIME FACULTY WORK AREA	70	70
A8-122	DEMONSTRATION	215	215
A8-123	OFFICE-DIVISION HEAD	160	160
A8-124	SECRETARY	120	120
A8-125	STERILIZING	245	245
A8-126	FACULTY OFFICE	280	280
A8-127	STUDENT/FACULTY DISCUSSION ROOM	280	280
A8-128	STUDENT/FACULTY DISCUSSION ROOM	280	280
A8-129	STORAGE	120	120
A8-130	CONSULTATION	110	110
A8-131	CONSULTATION	110	110
A8-132	X-RAY	60	60
A8-133	DARK ROOM	20	20
A8-134	CONSULTATION	110	110
A8-135	CONFERENCE	280	280
A8-136	SEMINAR AND READING ROOM	570	570
A8-137	AUTOTUTORIAL STUDY	140	140
A8-138	AUTOTUTORIAL STUDY	140	140
A8-139	AUTOTUTORIAL STUDY	140	140
A8-140	CONFERENCE	280	280
A8-141	CONSULTATION	110	110
A8-142	X-RAY	60	60
A8-143	DARK ROOM	20	20
A8-144	CONSULTATION	110	110
A8-145	CONSULTATION	110	110
A8-146	STORAGE	120	120
A8-147	LOUNGE - STUDY	130	130
A8-148	LOUNGE - STUDY	130	130



SCHOOL OF DENTISTRY

MULTIPURPOSE CLINICS (CONTINUED)

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A8-149	FACULTY OFFICE	280	280
A8-150	STERILIZING	245	245
A8-151	SECRETARY	120	120
A8-152	OFFICE-DIVISION HEAD	160	160
A8-153	DEMONSTRATION	215	215
A8-154	PART TIME FACULTY WORK AREA	70	70
A8-155	MULTIPURPOSE OPERATORIES (28)	2660	2660
A8-156	STUDENT LABORATORY	570	570
A8-157	CLINICAL LAB TECHNIQUE	375	375
A8-158	TECHNICIANS LABORATORY	570	570
A8-159	MULTIPURPOSE OPERATORIES (28)	2660	2660
A8-160	PART TIME FACULTY WORK AREA	70	70
A8-161	DEMONSTRATION	215	215
A8-162	STERILIZING	245	245
A8-163	FACULTY OFFICE	280	280
A8-164	FACULTY OFFICE	280	280
A8-165	DEMONSTRATION	200	200
A8-166	AUTOTUTORIAL STUDY	160	160
A8-167	DEMONSTRATION	200	200
A8-168	STORAGE	120	120
A8-169	X-RAY	60	60
A8-170	DARK ROOM	20	20
A8-171	CONSULTATION	110	110
	TOTAL	24,805	24,805

SCHOOL OF DENTISTRY

ORAL DIAGNOSIS		TOTAL	8,195
FLOOR 6			
ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A6-101	WAITING	750	750
A6-102	RECEPTION	110	110
A6-103	COATS	50	50
A6-109	CONSULTATION	90	90
A6-110	CONSULTATION	90	90
A6-111	CLINICAL STUDY	160	160
A6-112	CONFERENCE	280	280
A6-113	PLASTER ROOM	90	90
A6-114	LABORATORY	280	280
A6-115	STERILIZING	130	130
A6-116	DEMONSTRATION	215	215
A6-117	PART TIME FACULTY WORK AREA	70	70
A6-118	OPERATORIES (15)	1500	1500
A6-119	CO-ORDINATOR-ORAL DIAGNOSIS	100	100
A6-120	EMERGENCY AND SCREENING	120	120
A6-121	EMERGENCY AND SCREENING	120	120
A6-122	FACULTY OFFICE-ORAL DIAGNOSIS	280	280
A6-123	OFFICE-ORAL DIAGNOSIS	140	140
A6-124	SECRETARY-ORAL DIAGNOSIS	135	135
A6-125	CONFERENCE-X-RAY	230	230
A6-126	DARK ROOM	520	520
A6-127	X-RAY INTERPRETATION	175	175
A6-128	X-RAY EQUIPMENT LABORATORY	195	195
A6-129	X-RAY DEMONSTRATION	195	195
A6-130	X-RAY ROOM	60	60
A6-131	X-RAY ROOM	60	60
A6-132	X-RAY ROOM	60	60
A6-133	X-RAY ROOM	60	60
A6-134	X-RAY ROOM	60	60
A6-135	X-RAY ROOM	60	60
A6-136	X-RAY ROOM	60	60
A6-137	X-RAY ROOM	60	60
A6-138	X-RAY ROOM	70	70
A6-139	X-RAY ROOM	70	70
A6-140	X-RAY ROOM	70	70
A6-141	X-RAY ROOM	70	70
A6-142	X-RAY ROOM	70	70
A6-143	X-RAY ROOM	70	70
A6-144	X-RAY ROOM	70	70
A6-145	X-RAY ROOM	70	70
A6-146	OFFICE-RADIOLOGY	160	160
A6-147	OFFICE-RADIOLOGY	120	120

SCHOOL OF DENTISTRY

ORAL DIAGNOSIS (CONTINUED)

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A6-149	X-RAY COORDINATOR	70	70
A6-150	WHEEL CHAIR X-RAY	115	115
A6-151	PANOGRAPHIC X-RAY	90	90
A6-152	TECHNICIANS X-RAY	90	90
A6-153	CEPHALOMETRIC X-RAY	185	185
A6-154	LAMINOGRAPHIC X-RAY	185	185
A6-155	STORAGE	115	115
	TOTAL	8195	8195

SCHOOL OF DENTISTRY

ORAL SURGERY

TOTAL

4,685

FLOOR 6

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A6-156	DISPENSING	160	160
A6-157	DRESSING	130	130
A6-158	SCRUB	65	65
A6-159	DRESSING	130	130
A6-160	SCRUB	65	65
A6-161	STORAGE	70	70
A6-162	DEMONSTRATION	215	215
A6-163	RECOVERY	145	145
A6-164	OPERATORY	130	130
A6-165	OPERATORY	180	180
A6-166	X-RAY	60	60
A6-167	OPERATORY	180	180
A6-168	OPERATORY	130	130
A6-169	DEMONSTRATION	215	215
A6-170	OPERATORY	130	130
A6-171	OPERATORY	130	130
A6-172	OPERATORY	130	130
A6-173	WAITING	320	320
A6-174	RECOVERY	215	215
A6-175	OPERATORY	145	145
A6-176	PHOTO OPERATORY	145	145
A6-177	OPERATORY	145	145
A6-178	X-RAY	50	50
A6-179	STERILIZING (SHARED)	265	265
A6-203	CONFERENCE	280	280
A6-204	FACULTY OFFICE	290	290
A6-205	OFFICE	95	95
A6-206	GRADUATE STUDENTS OFFICE	190	190
A6-207	SECRETARY	140	140
A6-208	OFFICE-DIRECTOR	140	140
	TOTAL	4685	4685

SCHOOL OF DENTISTRY

ORTHODONTICS

TOTAL

9,235

FLOOR 9

ROOM	NAME	DENTAL UNDERGRAD	DENTAL GRADUATE	TOTAL NET S. F.
A9-101	WAITING	83	747	830
A9-102	RECEPTION (SHARED)	8	72	80
A9-103	COATS	6	54	60
A9-104	RECORDS (SHARED)	21	189	210
A9-105	DEMONSTRATION	26	234	260
A9-106	X-RAY	6	54	60
A9-107	DARK ROOM	2	18	20
A9-108	GRADUATE STUDY	22	198	220
A9-109	STORAGE	10	85	95
A9-110	FACULTY-STUDENT DISCUSSION RM.	20	180	200
A9-111	AUTOTUTORIAL STUDY	16	144	160
A9-112	DEMONSTRATION	20	180	200
A9-113	SECRETARY	16	144	160
A9-114	OFFICE	12	108	120
A9-115	DIVISION HEAD	16	144	160
A9-116	OFFICE	12	108	120
A9-117	PART TIME FACULTY OFFICE	16	144	160
A9-118	OFFICE	12	108	120
A9-119	OFFICE	16	144	160
A9-120	OFFICE	12	108	120
A9-121	OPERATORIES (27)	257	2308	2565
A9-122	STERILIZING	32	288	320
A9-123	TECHNICIANS LABORATORY	84	756	840
A9-124	OPERATORIES (17)	162	1453	1615
A9-151	X-RAY	6	54	60
A9-152	DARK ROOM	2	18	20
A9-153	CONFERENCE	30	270	300
	TOTAL	925	8310	9235

SCHOOL OF DENTISTRY

PEDIATRIC DENTISTRY

TOTAL

10,185

FLOOR 9

ROOM	NAME	DENTAL UNDERGRAD	DENTAL GRADUATE	TOTAL NET S. F.
A9-102	RECEPTION (SHARED)	72	8	80
A9-104	RECORDS (SHARED)	189	21	210
A9-155	PARENTS DEMONSTRATION	198	22	220
A9-156	CONSULTATION	54	6	60
A9-157	CONSULTATION	54	6	60
A9-158	STORAGE	85	10	95
A9-159	DIAGNOSTIC OPERATORY	99	11	110
A9-160	X-RAY	54	6	60
A9-161	DARK ROOM	18	2	20
A9-167	LOUNGE - STUDY	117	13	130
A9-171	CLINIC SERVICE LABORATORY	252	28	280
A9-172	CLINICAL STUDIES	252	28	280
A9-173	OPERATORIES (18)	1539	171	1710
A9-174	PART TIME FACULTY WORK AREA	63	7	70
A9-175	DEMONSTRATION	193	22	215
A9-176	STERILIZING	220	25	245
A9-177	STUDENT LABORATORY	504	56	560
A9-178	OPERATORIES (26)	2223	247	2470
A9-179	FACULTY OFFICE	252	28	280
A9-180	SEMINAR	261	29	290
A9-181	DIVISION HEAD	144	16	160
A9-182	SECRETARY	108	12	120
A9-183	FACULTY OFFICE	252	28	280
A9-184	DEMONSTRATION	180	20	200
A9-185	SPECIAL CARE OPERATORY	144	16	160
A9-186	GRADUATE STUDY	180	20	200
A9-187	AUTOTUTORIAL STUDY	193	22	215
A9-188	STORAGE	85	10	95
A9-189	DIAGNOSTIC OPERATORY	99	11	110
A9-190	PEDIATRIC TOILET	85	10	95
A9-191	PEDIATRIC TOILET	85	10	95
A9-192	CONSULTATION	54	6	60
A9-193	CONSULTATION	54	6	60
A9-194	COATS	54	6	60
A9-195	WAITING	747	83	830
TOTAL		9163	1022	10185

SCHOOL OF DENTISTRY

CLEFT PALATE AND MAXILLOFACIAL

TOTAL

3,335

FLOOR 9

ROOM	NAME	DENTAL UNDERGRAD	DENTAL GRADUATE	TOTAL NET S. .F.
A9-125	MAXILLOFACIAL OFFICE	42	98	140
A9-126	MAXILLOFACIAL CASTING ROOM	42	98	140
A9-127	MAXILLOFACIAL LABORATORY	42	98	140
A9-128	THERAPEUTIC SERVICES	42	98	140
A9-129	INTERVIEW	15	35	50
A9-130	PROSTHODONTIC LABORATORY	69	161	230
A9-131	CONFERENCE	84	196	280
A9-132	SOCIAL SERVICE OFFICE	42	98	140
A9-133	DATA ROOM	42	98	140
A9-134	DIRECTOR	48	112	160
A9-135	SECRETARY	36	84	120
A9-136	WAITING	66	154	220
A9-137	STORAGE	20	45	65
A9-138	CLEFT PALATE OPERATORY	33	77	110
A9-139	CLEFT PALATE OFFICE	27	63	90
A9-140	CLEFT PALATE OFFICE	27	63	90
A9-141	CLEFT PALATE OPERATORY	33	77	110
A9-142	CLEFT PALATE OPERATORY	33	77	110
A9-143	CLEFT PALATE OFFICE	27	63	90
A9-144	CLEFT PALATE OFFICE	27	63	90
A9-145	CLEFT PALATE OPERATORY	33	77	110
A9-146	OBSERVATION	42	98	140
A9-147	PEDIATRIC EXAMINATION	30	70	100
A9-148	ENT EXAMINATION	30	70	100
A9-149	SPEECH ROOM	35	80	115
A9-150	SPEECH ROOM	35	80	115
	TOTAL	1002	2333	3335

SCHOOL OF DENTISTRY

CONTINUING DENTAL EDUCATION :

TOTAL 2,785

FLOOR 9

ROOM	NAME	DENTAL GRADUATE	TOTAL NET S. F.
A9-154	CONFERENCE	770	770
A9-162	STORAGE	95	95
A9-163	WAITING AND RECEPTION	300	300
A9-164	OPERATORIES (8)	760	760
A9-165	DIRECTOR	130	130
A9-166	DEMONSTRATION	190	190
A9-168	LABORATORY	280	280
A9-169	LABORATORY	140	140
A9-170	STERILIZING	120	120
	TOTAL	2785	2785



SCHOOL OF DENTISTRY

HEALTH ECOLOGY

TOTAL

4,300

FLOOR 15

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A15-116	SEMINAR	210	70	280
A15-121	SEMINAR	544	181	725
A15-122	WAITING	156	54	210
A15-123	RECEPTION, SECRETARY & FILES	206	69	275
A15-124	INTERVIEW	75	25	100
A15-125	INTERVIEW	75	25	100
A15-126	INTERVIEW	75	25	100
A15-127	INTERVIEW	75	25	100
A15-128	INTERVIEW	75	25	100
A15-129	INTERVIEW	75	25	100
A15-130	INTERVIEW	75	25	100
A15-131	FACULTY OFFICE	113	37	150
A15-132	INTERVIEW	75	25	100
A15-133	INTERVIEW	75	25	100
A15-134	INTERVIEW	75	25	100
A15-135	FACULTY OFFICE	113	37	150
A15-136	INTERVIEW	75	25	100
A15-137	INTERVIEW	75	25	100
A15-138	INTERVIEW	75	25	100
A15-139	FACULTY OFFICE	120	40	160
A15-140	DATA COLLECTION	788	262	1050
	TOTAL	3225	1075	4300

SCHOOL OF DENTISTRY

ANIMAL FACILITIES

TOTAL 6,320

FLOOR 19

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A19-101	CAGEWASHING AND SERVICE	216	264	480
A19-102	STORAGE	126	154	280
A19-103	DIET PREPARATION	90	110	200
A19-104	ANIMAL OPERATING ROOM	63	77	140
A19-105	ANIMAL OPERATING ROOM	63	77	140
A19-106	ANIMAL OPERATING ROOM	63	77	140
A19-107	ANIMAL OPERATING ROOM	63	77	140
A19-108	GERM FREE ROOM	270	330	600
A19-109	ANIMAL ROOM	126	154	280
A19-110	ANIMAL ROOM	126	154	280
A19-111	ANIMAL ROOM	126	154	280
A19-112	ANIMAL ROOM	126	154	280
A19-113	ANIMAL ROOM	126	154	280
A19-114	ANIMAL ROOM	126	154	280
A19-115	ANIMAL ROOM	126	154	280
A19-116	ANIMAL ROOM	126	154	280
A19-117	ANIMAL ROOM	126	154	280
A19-118	ANIMAL ROOM	126	154	280
A19-119	ANIMAL ROOM	126	154	280
A19-120	ANIMAL ROOM	126	154	280
A19-121	ANIMAL ROOM	126	154	280
A19-122	ANIMAL ROOM	126	154	280
A19-123	ANIMAL ROOM	126	154	280
	TOTAL	2844	3476	6320

SCHOOL OF DENTISTRY

BASIC CLINICAL RESEARCH TRAINING TOTAL 5,990

FLOOR 16

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A16-159	LABORATORY	252	168	420
A16-160	OFFICE	84	56	140
	TOTAL	336	224	560

FLOOR 17

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A17-134	IMMUNIZATION	168	112	280
A17-135	COLD ROOM	60	40	100
A17-136	FREEZER	60	40	100
A17-137	PHOTOMICROGRAPHY	54	36	90
A17-138	DARK ROOM	54	36	90
A17-139	AUTO RADIOGRAPHY	54	36	90
A17-140	LABORATORY	330	220	550
A17-141	LABORATORY	330	220	550
A17-142	SHIELDED ROOM	120	80	200
A17-143	STORAGE	120	80	200
A17-144	OFFICE	72	48	120
A17-145	OFFICE	96	64	160
A17-146	SECRETARY	96	64	160
A17-147	OFFICE	72	48	120
A17-148	LABORATORY	342	228	570
	TOTAL	2028	1352	3380

FLOOR 18

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A18-104	LABORATORY-OFFICE	168	112	280
A18-108	LABORATORY	342	228	570
A18-118	LABORATORY	168	112	280
A18-119	OFFICE	84	56	140
A18-120	OFFICE	84	56	140
A18-121	LABORATORY	168	112	280
A18-131	ELECTRON MICROSCOPE PREP (SHARED)	72	48	120
A18-132	ELECTRON MICROSCOPE ROOM	102	68	170
A18-133	DARK ROOM	24	16	40
A18-134	MICROTOME ROOM	18	12	30
	TOTAL	1230	820	2050

SCHOOL OF DENTISTRY

BIOCHEMISTRY		TOTAL		5,655
FLOOR 18				
ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A18-101	CONFERENCE ROOM (SHARED)	94	141	235
A18-140	COLD ROOM	56	84	140
A18-141	OFFICE	56	84	140
A18-142	SPECIAL PREPARATION	112	168	280
A18-143	DATA PREPARATION	160	240	400
A18-144	FACULTY LABORATORY	188	282	470
A18-145	STORAGE ROOM	40	60	100
A18-146	OFFICE	40	60	100
A18-147	GRADUATE LABORATORY	188	282	470
A18-148	BALANCE ROOM	80	120	200
A18-149	FACULTY LABORATORY	228	342	570
A18-150	GRADUATE LABORATORY	228	342	570
A18-151	GRADUATE LABORATORY	228	342	570
A18-152	FACULTY LABORATORY	228	342	570
A18-153	INSTRUMENT ROOM	112	168	280
A18-154	STORAGE ROOM	48	72	120
A18-155	OFFICE	112	168	280
A18-156	OFFICE	64	96	160
	TOTAL	2262	3393	5655

SCHOOL OF DENTISTRY

BIOMATERIALS

TOTAL

1,690

FLOOR 16

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A16-137	SECRETARY	120	80	200
A16-138	STORAGE	48	32	80
A16-139	OFFICE	72	48	120
A16-140	OFFICE	96	64	160
A16-141	HISTOLOGY LABORATORY	144	96	240
A16-142	X-RAY ROOM	24	16	40
A16-143	ISOTOPE LABORATORY	48	32	80
A16-144	PHOTO LABORATORY	72	48	120
A16-145	MICROSCOPE LABORATORY	48	32	80
A16-146	BIOMATERIALS LABORATORY	342	228	570
	TOTAL	1014	676	1690

SCHOOL OF DENTISTRY

BIostatistics TOTAL 770

FLOOR 16

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A16-134	BIostatistics OFFICE	80	120	200
A16-136	BIostatistics LABORATORY	228	342	570
	TOTAL	308	462	770

SCHOOL OF DENTISTRY

		TOTAL		4,020
GENETICS				
FLOOR 16				
ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A16-110	GRADUATE STUDY (SHARED)	68	102	170
A16-111	CONFERENCE (SHARED)	82	123	205
A16-118	SECRETARY	56	84	140
A16-119	DIRECTOR	56	84	140
A16-124	MEDICAL GENETICS LABORATORY	112	168	280
A16-125	OFFICE	56	84	140
A16-126	OFFICE	56	84	140
A16-127	GENETICS BIOCHEMISTRY LABORATORY	112	168	280
A16-128	DENTAL GENETIC LABORATORY	170	255	425
A16-129	CYTOGENETICS LABORATORY	232	348	580
A16-130	PHOTO DARK ROOM	54	81	135
A16-131	GENETICS BIOCHEMISTRY LABORATORY	360	540	900
A16-132	SERVICE ROOM	48	72	120
A16-133	COLD ROOM	48	72	120
A16-135	GRADUATE LABORATORY (SHARED)	98	147	245
TOTAL		1608	2412	4020

SCHOOL OF DENTISTRY

MICROBIOLOGY

TOTAL 6,435

FLOOR 18

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A18-101	CONFERENCE (SHARED)	94	141	235
A18-102	SECRETARY	56	84	140
A18-103	OFFICE	56	84	140
A18-105	INSTRUMENT ROOM	188	282	470
A18-106	OFFICE	56	84	140
A18-107	LABORATORY	168	252	420
A18-109	COLD ROOM	44	66	110
A18-110	GLASS WASH AND MEDIA PREP	168	252	420
A18-111	LABORATORY	400	600	1000
A18-112	INCUBATOR	40	60	100
A18-113	OFFICE	48	72	120
A18-114	OFFICE	48	72	120
A18-115	LABORATORY	420	630	1050
A18-116	COLD ROOM	32	48	80
A18-117	FREEZER	24	36	60
A18-122	PHOTO LABORATORY	32	48	80
A18-123	PHOTO LABORATORY	32	48	80
A18-124	VACUUM EVAPORATOR	24	36	60
A18-125	ELECTRON MICROSCOPE PREP	140	210	350
A18-126	ELECTRON MICROSCOPE ROOM	68	102	170
A18-127	DARK ROOM	20	30	50
A18-128	OFFICE	48	72	120
A18-129	ELECTRON MICROSCOPE ROOM	68	102	170
A18-130	DARK ROOM	20	30	50
A18-131	ELECTRON MICROSCOPE PREP (SHARED)	48	72	120
A18-135	ELECTRON MICROSCOPE ROOM	68	102	170
A18-136	DARK ROOM	16	24	40
A18-137	MICROTOME ROOM	12	18	30
A18-138	STORAGE	40	60	100
A18-139	OFFICE	96	144	240
	TOTAL	2574	3861	6435



SCHOOL OF DENTISTRY

ORAL BIOLOGY

TOTAL 7,890

FLOOR 17

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A17-101	GRADUATE LABORATORY	188	282	470
A17-102	GRADUATE OFFICE	112	168	280
A17-103	FACULTY OFFICE	112	168	280
A17-104	CONFERENCE	188	282	470
A17-105	SECRETARIAL POOL	128	192	320
A17-106	OFFICE	64	96	160
A17-107	MICROSCOPE LABORATORY	48	72	120
A17-108	LABORATORY	96	144	240
A17-109	OFFICE	64	96	160
A17-110	OFFICE	48	72	120
A17-111	CHEMISTRY LABORATORY	420	630	1050
A17-112	COLD ROOM	40	60	100
A17-113	FREEZER	40	60	100
A17-114	STORAGE	68	102	170
A17-115	BALANCE ROOM	48	72	120
A17-116	HISTOLOGY LABORATORY	420	630	1050
A17-117	LABORATORY	112	168	280
A17-118	OFFICE	56	84	140
A17-119	OFFICE	56	84	140
A17-120	LABORATORY	112	168	280
A17-121	INSTRUMENT ROOM	112	168	280
A17-122	DATA COLLECTING	116	174	290
A17-123	ELECTRON MICROSCOPE PREPARATION	96	144	240
A17-124	MICROTOME ROOM	16	24	40
A17-125	ELECTRON MICROSCOPE ROOM	68	102	170
A17-126	DARK ROOM	12	18	30
A17-127	MICROTOME ROOM	16	24	40
A17-128	SCANNING ELECTRON MICROSCOPE ROOM	68	102	170
A17-129	DARK ROOM	12	18	30
A17-130	TISSUE CULTURE LABORATORY	72	108	180
A17-131	TISSUE CULTURE LABORATORY	56	84	140
A17-132	TISSUE CULTURE LABORATORY	36	54	90
A17-133	TISSUE CULTURE LABORATORY	56	84	140
TOTAL		3156	4734	7890

SCHOOL OF DENTISTRY

ORAL PATHOLOGY

TOTAL 4,045

FLOOR 16

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A16-108	WAITING	66	44	110
A16-109	EXAMINATION	66	44	110
A16-110	GRADUATE STUDY (SHARED)	102	68	170
A16-111	CONFERENCE (SHARED)	123	82	205
A16-112	SECRETARY	84	56	140
A16-113	DIRECTOR	84	56	140
A16-114	SECRETARY	84	56	140
A16-115	OFFICE	84	56	140
A16-116	OFFICE	84	56	140
A16-117	OFFICE	84	56	140
A16-120	TEACHING LABORATORY	510	340	850
A16-121	LABORATORY	360	240	600
A16-122	SERVICE	135	90	225
A16-123	STORAGE	72	48	120
A16-135	GRADUATE LABORATORY (SHARED)	147	98	245
	TOTAL	2085	1390	3475

FLOOR 6

ROOM	NAME	DENTAL TEACHING	TOTAL NET S. F.
A6-209	CLINICAL LABORATORY SERVICES	570	570
	TOTAL	570	570

SCHOOL OF DENTISTRY

PHYSIOLOGY

TOTAL 2,740

FLOOR 17

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A17-149	ELECTRICAL SHOP	112	168	280
A17-150	COMPUTER LABORATORY	116	174	290
A17-151	CHEMISTRY LABORATORY	228	342	570
A17-152	PHOTO MICROGRAPHY	80	120	200
A17-153	DARK ROOM	28	42	70
A17-154	STORAGE	48	72	120
A17-155	LABORATORY	112	168	280
A17-156	AUTO RADIOGRAPHY	36	54	90
A17-157	ISOTOPE LABORATORY	112	168	280
A17-158	ISOTOPE COUNTING	56	84	140
A17-159	SECRETARY	72	108	180
A17-160	OFFICE	40	60	100
A17-161	OFFICE	56	84	140
	TOTAL	1096	1644	2740

SCHOOL OF DENTISTRY

SPEECH PATHOLOGY

TOTAL

975

FLOOR 16

ROOM	NAME	DENTAL TEACHING	DENTAL RESEARCH	TOTAL NET S. F.
A16-101	SPEECH CONTROL	114	76	190
A16-102	AUDIO ROOM	84	56	140
A16-103	OBSERVATION	60	40	100
A16-104	SPEECH LABORATORY	81	54	135
A16-105	OBSERVATION	60	40	100
A16-106	AUDIO ROOM	84	56	140
A16-107	SPEECH OFFICE	102	68	170
	TOTAL	585	390	975

SCHOOL OF DENTISTRY

ADMINISTRATION AND BUSINESS OFFICES

TOTAL 4,375

FLOOR 15

ROOM	NAME	DENTAL TEACHING	TOTAL NET S. F.
A15-101	RECEPTION	280	280
A15-102	GENERAL ADMINISTRATIVE OFFICE	495	495
A15-103	SECRETARY	165	165
A15-104	ASSISTANT DEAN	180	180
A15-105	SECRETARY	165	165
A15-106	ASSISTANT DEAN	180	180
A15-107	SECRETARY	185	185
A15-108	ASSISTANT DEAN	180	180
A15-109	SECRETARY	185	185
A15-110	DEAN	380	380
A15-111	TOILET	40	40
A15-112	TOILET	40	40
A15-113	CONFERENCE	600	600
A15-114	STORAGE	120	120
A15-115	DUPLICATING	160	160
A15-117	BUSINESS OFFICE	640	640
A15-118	BUSINESS MANAGER	190	190
A15-119	RECORDS	190	190
	TOTAL	4375	4375

SCHOOL OF DENTISTRY

CLINICAL ADMINISTRATION

TOTAL 1,305

FLOOR 6

ROOM NAME

DENTAL TEACHING TOTAL NET S. F.

A6-104 CENTRAL RECORDS  
A6-105 GENERAL CLINIC OFFICE  
A6-106 CLINIC MANAGER

885 885  
280 280  
140 140

TOTAL

1305 1305

SCHOOL OF DENTISTRY

PHOTOGRAPHY AND TV

TOTAL 2,620

FLOOR 16

ROOM	NAME	DENTAL TEACHING	TOTAL NET S. F.
A16-147	SECRETARY	110	110
A16-148	DIRECTOR	110	110
A16-149	LIBRARY	440	440
A16-150	STUDIO	965	965
A16-151	EQUIPMENT ROOM	110	110
A16-152	FILM DARK ROOM	90	90
A16-153	PRINT DARK ROOM	200	200
A16-154	STORAGE	60	60
A16-155	FILM LOADING	35	35
A16-156	CONTROL ROOM	220	220
A16-157	WORK ROOM	140	140
A16-158	ART WORK ROOM	140	140
	TOTAL	2620	2620

SCHOOL OF DENTISTRY

STUDENT AND STAFF FACILITIES

TOTAL

17,065

FLOOR 4

ROOM	NAME	DENTAL UNDERGRAD	TOTAL NET S. F.
A4-102	GENERAL DENTAL STUDENT LOUNGE	1280	1280
A4-104	DENTISTRY READING ROOM	1280	1280
A4-111	DENTAL STUDENT LOCKERS	1500	1500
A4-112	LOUNGE	360	360
A4-113	TOILET	180	180
A4-114	LAUNDRY ROOM	80	80
A4-115	DENTAL STUDENT LOCKERS	1500	1500
A4-116	NON ACADEMIC WOMENS STAFF LOUNGE	190	190
A4-117	NON ACADEMIC WOMENS STAFF LOCKERS	400	400
A4-118	TOILET	60	60
A4-119	TOILET	60	60
A4-120	NON ACADEMIC MENS STAFF LOCKERS	305	305
A4-121	NON ACADEMIC MENS STAFF LOUNGE	160	160
	TOTAL	7355	7355

FLOOR 5

ROOM	NAME	DENTAL UNDERGRAD	DENTAL AUXILIARY	TOTAL NET S. F.
A5-101	DENTAL HYGIENE & ASSISTING STUDENT LOUNGE		595	595
A5-105	DENTAL HYGIENE & ASSISTING STUDENT LOCKERS		2865	2865
A5-106	LAUNDRY ROOM		120	120
A5-107	TOILET		200	200
A5-108	LOUNGE-MENS FACULTY	120		120
A5-109	LOCKERS-MENS FACULTY	680		680
A5-110	TOILET	55		55
A5-111	LAUNDRY ROOM	60		60
A5-112	LOUNGE-WOMENS FACULTY	120		120
A5-113	LOCKERS-WOMENS FACULTY	270		270
A5-114	TOILET	35		35
A5-115	LAUNDRY ROOM	35		35
A5-116	STUDENT LOCKERS	2755		2755
A5-117	TOILET	140		140
A5-118	STUDENT LOUNGE	340		340
A5-119	LAUNDRY ROOM	100		100
A5-120	TOILET	140		140
A5-131	DENTAL HYGIENE & ASSISTING FACULTY LOCKERS		185	185
A5-132	TOILET		35	35
A5-133	LAUNDRY ROOM		35	35
A5-138	DENTAL HYGIENE & ASSISTING FACULTY LOUNGE		100	100
	TOTAL	4850	4135	8985



SCHOOL OF DENTISTRY

STUDENT AND STAFF FACILITIES ( CONTINUED)

FLOOR 15

ROOM	NAME	DENTAL TEACHING	TOTAL NET S. F.
A15-120	FACULTY LOUNGE	725	725
	TOTAL	725	725

PART TWO  
Section D

SCHOOL OF PUBLIC HEALTH

TOTAL 16,017

PUBLIC HEALTH-PHYSIOLOGICAL HYGIENE

ROOM	NAME	TOTAL NET S. F.
A1-106	VOLATILE LIQUID STORAGE	58
A1-107	COLD ROOM	78
A1-108	SHOP	230
A1-109	INSTRUMENT LABORATORY	240
A1-110	SERUM LIPID LABORATORY	240
A1-111	BLOOD PREP LABORATORY	240
A1-112	AUTO ANALYSER LABORATORY	240
A1-113	STORAGE	150
A1-114	SUPPLY	190
A1-115	STUDENT OFFICE	72
A1-116	STUDENT OFFICE	72
A1-117	STUDENT OFFICE	72
A1-118	STUDENT OFFICE	72
A1-119	STUDENT OFFICE	72
A1-120	STUDENT OFFICE	72
A1-121	METABOLIC CHAMBER	72
A1-122	OBSERVATION	72
A1-123	TEST AREA	924
A1-123A	TEST AREA	192
A1-124	NUTRITION	395
A1-125	DRESSING	203
A1-126	X-RAY	124
A1-127	OBSERVATION	95
A1-128	E.K.G.	78
A1-129	E.K.G.	78
A1-130	EXAM	98
A1-131	EXAM	98
A1-132	FREEZER	80
A1-133	KITCHEN	150
A1-134	COLD	80
A1-135	STORAGE	75
A1-136	DATA PROCESSING	770
A1-138	GENERAL OFFICE	462
A1-139	GRAPHIC REPRODUCTION	462
A1-140	FACULTY OFFICE	95
A1-141	FACULTY OFFICE	95
A1-142	FACULTY OFFICE	95
A1-143	FACULTY OFFICE	95
A1-144	DIRECTOR'S OFFICE	190
A1-145	FACULTY OFFICE	120
A1-146	FACULTY OFFICE	120
A1-147	FACULTY OFFICE	120
A1-148	FACULTY OFFICE	92
A1-149	FACULTY OFFICE	92
	TOTAL	7720

PUBLIC HEALTH-EPIDEMIOLOGY

ROOM	NAME	TOTAL NET S. F.
A1-151	DIRECTOR'S OFFICE	264
A1-152	SECRETARY	96
A1-153	RECEPTION-SECRETARY	96
A1-154	CLERICAL POOL	325
A1-155	FILE ROOM	150
A1-156	GRAPHICS WORKROOM	168
A1-157	WORKROOM	364
A1-158	TEACHING MATERIAL STORAGE	95
A1-159	SEMI-ACTIVE RECORDS	190
A1-160	GENERAL SUPPLY	118
A1-161	PHOTO WORKROOM	115
A1-162	FACULTY OFFICE	143
A1-163	FACULTY OFFICE	143
A1-164	FACULTY OFFICE	143
A1-165	FACULTY OFFICE	143
A1-166A	READING ROOM	280
A1-168	INSTRUMENT ROOM	184
A1-169	BALANCE ROOM	100
A1-170	EQUIPMENT ROOM	180
A1-171	STATISTICAL ANALYSIS	590
A1-172	STUDENT OFFICE	106
A1-173	STUDENT OFFICE	106
A1-174	FIELD STAFF	220
A1-175	FIELD STAFF	220
A1-176	STUDENT OFFICE	106
A1-177	STUDENT OFFICE	106
A1-178	FACULTY OFFICE	129
A1-179	FACULTY OFFICE	129
A1-180	LABORATORY	221
A1-181	LABORATORY	221
A1-182	LABORATORY	221
A1-183	LABORATORY	221
A1-184	FACULTY OFFICE	141
A1-185	FACULTY OFFICE	141
A1-186	STATISTICAL ANALYSIS	185
A1-187	COLD ROOM	95
A1-188	MEDIA PREPARATION	231
A1-189	CLEANING & STERILIZATION ROOM	231
A1-190	FILE ROOM	150
A1-191	SECRETARY	98
A1-192	GENERAL SUPPLY	138
	TOTAL	7303

PUBLIC HEALTH-SHARED FACILITIES

ROOM	NUMBER	TOTAL NET S. F.
A1-137	RECEPTION	138
A1-150	CONFERENCE ROOM	194
A1-166	STUDY	376
A1-167	CONFERENCE ROOM	286
	TOTAL	994

PART TWO

Section D Proposed Facilities

BASIC SCIENCES TEACHING LABORATORIES AND SUPPORT TOTAL 38,375

<u>ROOM</u>	<u>NAME</u>	<u>MEDICAL UNDER- GRAD TEACHING</u>	<u>MEDICAL GRADUATE TEACHING</u>	<u>DENTAL TEACHING</u>	<u>APPLI- CANTS</u>	<u>TOTAL NET</u>
<u>BIOCHEMISTRY</u>						<u>TOTAL 8,325</u>
A2-150	TEACHING LAB	752	192	288	368	1,600
A2-151	COLD ROOM	116	30	44	56	246
A2-152	TEACHING LAB	752	192	288	368	1,600
A2-153	INSTRUMENT RM., DRY	116	30	45	57	248
A2-154	INSTRUMENT RM., WET	100	26	38	49	213
A2-155	STOCK & DISPENSING RM	238	61	91	117	507
A2-156	OFFICE	41	10	16	20	87
A2-157	DARK ROOM	32	8	12	15	67
A2-158	COLD ROOM	116	29	44	57	246
A2-159	DEMONSTRATION ROOM	90	23	35	44	192
A2-160	GLASS WASH & CLEANUP	85	22	33	42	182
A2-161	TEACHING LABORATORY	752	192	288	368	1,600
A2-162	ADVANCED STUDENT LAB	722	184	277	354	1,537
	TOTAL	3,912	999	1,499	1,915	8,325

<u>MICROBIOLOGY</u>						<u>TOTAL 8,657</u>
A2-164	WALK-IN REFRIG. RM.	26	10	17	67	120
A2-165	STERILE ROOM	30	11	19	78	138
A2-166	MEDIA PREP ROOM	82	31	53	214	380
A2-167	CENTRAL STERILE	107	40	70	280	497
A2-168	CENTRAL GLASS & DISPOSAL ROOM	89	33	58	233	413
A2-169	STORAGE ROOM	66	24	42	171	303
A2-170	TEACHING LAB	255	94	165	666	1,180
A2-171	OFFICE	22	8	14	56	100
A2-172	GLASSWARE, REAGENT & DISPEN.	80	30	52	210	372
A2-173	DEMONSTRATION ROOM	220	81	143	575	1,019
A2-174	TEACHING LAB	258	96	168	675	1,197
A2-175	WALK-IN REFRIG.	27	10	17	69	123
A2-176	STORAGE	44	16	29	115	204
A2-177	TEACHING LAB	255	94	165	666	1,180
A2-178	MICRO-PREP ROOM	167	62	109	437	775
A2-179	WALK-IN REFRIG.	23	8	15	60	106
A2-180	MYCOLOGY MUSEUM LAB	28	11	18	74	131
A2-181	BACTERIA VIRUS LAB	39	14	25	100	178
A2-182	STORAGE	22	8	15	58	103
A2-183	WOMEN'S LOCKER, TOILET	30	11	19	78	138
	TOTAL	1,870	692	1,213	4,882	8,657

BASIC SCIENCES TEACHING LABORATORIES AND SUPPORT (CON'T)

ROOM	NAME	MEDICAL UNDER- GRAD TEACHING	MEDICAL GRADUATE TEACHING	DENTAL TEACHING	APPLI- CANTS	TOTAL NET S.F.
<u>PHARMACOLOGY</u>					<u>TOTAL</u>	7,351
A3-110	PREPARATION ROOM (SHARED)	49	9	19	13	90
A3-111	DEMONSTRATION ROOM (SHARED)	444	81	169	113	807
A3-120	LABORATORY	428	78	163	109	778
A3-121	STORAGE	58	11	22	15	106
A3-122	LABORATORY	433	79	165	110	787
A3-123	LABORATORY	429	78	164	109	780
A3-124	STORAGE	231	42	88	59	420
A3-125	INSTRUMENT ROOM	119	22	45	30	216
A3-126	DISPENSING AND PREP	246	45	54	63	448
A3-127	INSTRUMENT ROOM	119	22	45	30	216
A3-128	COLD ROOM	110	20	42	28	200
A3-129	COLD ROOM	110	20	42	28	200
A3-130	LABORATORY	423	77	162	108	770
A3-131	LABORATORY	423	77	162	108	770
A3-132	LABORATORY	420	76	160	107	763
	TOTAL	4,042	737	1,542	1,030	7,351
<u>PATHOLOGY</u>					<u>TOTAL</u>	6,820
A2-120	REFERENCE & STUDY ROOM	850	29	561	-	1,440
A3-100	STORAGE-TEACHING MATERIALS	302	10	200	-	512
A3-101	LABORATORY	469	16	310	-	795
A3-102	STORAGE	63	2	41	-	106
A3-103	LABORATORY	459	16	303	-	778
A3-104	TISSUE STRAINING & PREP	459	16	303	-	778
A3-105	LABORATORY	459	16	303	-	778
A3-106	GROSS SPECIMEN MUSEUM	432	15	285	-	732
A3-107	LABORATORY	469	16	310	-	795
A3-108	STORAGE	63	2	41	-	106
	TOTAL	4,025	138	2,657		6,820

BASIC SCIENCES TEACHING LABORATORIES AND SUPPORT (CON'T)

ROOM	NAME	MEDICAL UNDER- GRAD TEACHING	MEDICAL GRADUATE TEACHING	DENTAL TEACHING	PUBLIC HEALTH	APPLI- CANTS	TOTAL NET S.F.
<u>PHYSIOLOGY</u>						<u>TOTAL</u>	7,222
A3-110	PREP ROOM (SHARED)	34	13	18	11	14	90
A3-111	DEMONSTRATION (SHARED)	306	113	161	97	129	806
A3-112	STOCK & PREP ROOM	539	198	283	170	226	1,416
A3-113	INSTRUMENT ROOM	141	52	74	44	59	370
A3-114	LABORATORY	296	109	156	94	125	780
A3-115	LABORATORY	299	110	157	95	126	787
A3-116	LABORATORY	296	109	156	93	124	778
A3-117	LABORATORY	299	110	157	95	126	787
A3-118	LABORATORY	296	109	156	93	124	778
A3-119	LABORATORY	239	88	126	76	101	630
TOTAL		2,745	1,011	1,444	868	1,154	7,222

GRAND TOTAL FOR BASIC SCIENCE TEACHING LABORATORIES AND SUPPORT

16,594      3,577      8,355      868      8,981      38,375

SHARED CLASSROOMS AND STUDENT FACILITIES

TOTAL 26,488

SHARED CLASSROOMS

TOTAL 23,247

ROOM	NAME	MEDICAL UNDER- GRAD TEACHING	MEDICAL GRADUATE TEACHING	DENTAL TEACHING	PUBLIC HEALTH	APPLI CANTS	TOTAL NET
A2-100	SEMINAR	241	5		11	11	268
A2-101	SEMINAR	241	5		11	11	268
A2-102	SEMINAR	241	5		11	11	268
A2-103	SEMINAR	199	4		9	10	222
A2-104	SEMINAR	174	4		8	8	194
A2-105	SEMINAR	174	4		8	8	194
A2-106	SEMINAR	174	4		8	8	194
A2-107	STORAGE	21	8	45	24	14	112
A2-108	DISCUSSION ALCOVE	23	8	48	25	16	120
A2-109	AUDITORIUM-200 SEAT	470	168	988	513	316	2460
A2-110	PROJECTION ROOM	23	8	48	25	16	120
A2-111	DISCUSSION ALCOVE	21	8	45	24	14	112
A2-113	CLASSROOM-50 SEAT	120	43	253	133	81	630
A2-114	STORAGE	18	7	39	20	12	96
A2-115	STORAGE	18	7	39	20	12	96
A2-116	CLASSROOM-50 SEAT	120	43	253	133	81	630
A2-117	STORAGE	18	7	39	20	12	96
A2-118	CLASSROOM-50 SEAT	120	43	253	133	81	630
A2-121	CLASSROOM-100 SEAT	220	78	461	242	148	1150
A2-122	STORAGE	39	14	83	43	27	206
A2-123	CLASSROOM-15 SEAT	233	5		11	11	260
A2-124	CLASSROOM-15 SEAT	233	5		11	11	260
A2-125	CLASSROOM-15 SEAT	233	5		11	11	260
A2-126	CLASSROOM-20 SEAT	262	6		12	12	292
A2-127	CLASSROOM-20 SEAT	262	6		12	12	292
A2-128	CLASSROOM-20 SEAT	262	6		12	12	292
A2-129	AUDITORIUM-250 SEAT	544	194	1145	600	367	2850
A2-130	PROJECTION ROOM-CCTV	42	15	89	46	28	220
A2-131	SEMINAR	242	5		11	12	270
A2-132	DISCUSSION ALCOVE	23	8	48	25	16	120
A2-133	PREPARATION ROOM	149	53	314	165	101	782
A2-134	AUDITORIUM-250 SEAT	544	194	1145	600	367	2850
A2-135	DISCUSSION ALCOVE	23	8	48	25	16	120
A2-136	PROJECTION ROOM-CCTV	42	15	89	46	28	220
A2-137	SEMINAR	242	5		11	12	270
A2-138	PROJECTION ROOM-CCTV	51	18	106	56	34	265
A2-139	DISCUSSION ALCOVE	27	10	58	30	19	144
A2-140	DISCUSSION ALCOVE	27	10	58	30	19	144
A2-141	STORAGE	10	4	22	11	7	54
A2-142	SEMINAR	205	4		9	10	228
A2-143	SEMINAR	213	6		9	10	238
A2-144	AUDITORIUM-350 SEAT	796	284	1675	878	537	4170
A2-145	REAR PROJECTION ROOM	111	39	233	122	75	580
	TOTAL	7451	1378	7625	4169	2624	23,247



SHARED CLASSROOMS AND STUDENT FACILITIES (CON'T)

ROOM	NAME	MEDICAL UNDER- GRAD	MEDICAL GRADUATE TEACHING	DENTAL TEACHING	PUBLIC HEALTH	APPLI- CANTS	TOTAL NET
<u>STUDENT FACILITIES</u>						<u>TOTAL</u>	3,241
A2-112	STUDENT STUDY & LOUNGE	415	148	873	458	280	2,175
A2-119	STUDENT SUPPLY CENTER 204		73	429	224	137	1,066
	TOTAL	619	221	1,302	682	417	3,241

GRAND TOTAL OF SHARED CLASSROOMS AND STUDENT FACILITIES

8,070	1,599	8,927	4,851	3,041	26,488
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SERVICE FACILITIES

TOTAL 15,219

<u>ROOM</u>	<u>NAME</u>	<u>MEDICINE</u>	<u>DENTISTRY</u>	<u>PUBLIC HEALTH</u>	<u>APPLICANTS SPACE</u>	<u>TOTAL NET S. F.</u>
AB-100	BUILDING & PLANT SERVICES	2,156	6,525	717	434	9,832
A1-100	SUPPLY STORAGE & RECEIVING	664	2,009	221	133	3,027
A2-163	JANITOR	23	14	4	9	50
A2-184	JANITOR	60	42	18	36	156
A3-133	JANITOR	56	24	4	10	94
A4-143	JANITOR	-	130	-	-	130
A5-143	JANITOR	-	80	-	-	80
A5-144	RECEIVING	-	80	-	-	80
A6-231	JANITOR	-	75	-	-	75
A6-232	RECEIVING	-	80	-	-	80
A7-172	JANITOR	-	120	-	-	120
A7-173	RECEIVING	-	80	-	-	80
A8-172	JANITOR	-	120	-	-	120
A8-173	RECEIVING	-	80	-	-	80
A9-196	JANITOR	-	120	-	-	120
A9-197	RECEIVING	-	80	-	-	80
A11-102	JANITOR	30	-	-	-	30
A12-133	JANITOR	125	-	-	-	125
A13-110	JANITOR	30	-	-	-	30
A14-117	JANITOR	30	-	-	-	30
A15-142	JANITOR	-	80	-	-	80
A15-143	RECEIVING	-	80	-	-	80
A16-161	JANITOR	-	80	-	-	80
A16-162	RECEIVING	-	80	-	-	80
A17-162	JANITOR	-	80	-	-	80
A17-163	RECEIVING	-	80	-	-	80
A18-157	JANITOR	-	80	-	-	80
A18-158	RECEIVING	-	80	-	-	80
A19-124	JANITOR	-	80	-	-	80
A19-125	RECEIVING	-	80	-	-	80

TOTAL 3,174 10,459 964 622 15,219

APPLICANT'S SPACE

TOTAL 1,114

ROOM	NAME	TOTAL NET S.F.
A1-193	APPLICANTS SPACE	557
A1-194	APPLICANTS SPACE	557
TOTAL		1,114

PART TWO

Section E Space Summary

FLOOR-BY-FLOOR SUMMARY OF NET AREAS IN UNIT 'A'

<u>FLOOR</u>	<u>MEDICAL</u>	<u>DENTAL</u>	<u>PUBLIC HEALTH</u>	<u>APPLICANTS</u>	<u>TOTAL</u>
B	2,156	6,525	717	434	9,832
1	4,619	2,009	16,238	1,247	24,113
2	18,104	12,256	4,873	9,883	45,116
3	11,875	5,106	872	2,194	20,047
4	-	22,960	-	-	22,960
5	-	20,120	-	-	20,120
6	-	24,295	-	-	24,295
7	-	25,005	-	-	25,005
8	-	25,005	-	-	25,005
9	-	25,740	-	-	25,740
10	-	-	-	-	-
11	8,065	-	-	-	8,065
12	8,025	-	-	-	8,025
13	7,771	-	-	-	7,771
14	7,830	-	-	-	7,830
15	-	9,560	-	-	9,560
16	-	14,270	-	-	14,270
17	-	14,170	-	-	14,170
18	-	14,300	-	-	14,300
19	-	6,480	-	-	6,480
TOTAL	68,445	227,801	22,700	13,758	332,704

PART TWO

Section E Space Summary

SUMMARY OF NET AREAS ASSIGNABLE TO THE SCHOOL OF MEDICINE

PROGRAM	MEDICAL UNDERGRAD	MEDICAL GRADUATE	MEDICAL RESEARCH	TOTAL NET S.F.
DEPARTMENT OF MEDICINE	9,559	-	6,376	15,935
DEPARTMENT OF PEDIATRICS	9,321	-	6,220	15,541
MEDICAL STUDENT ADYTUM	3,955	-	-	3,955
SUBTOTAL	22,835	-	12,596	35,431

NET AREAS ASSIGNABLE TO THE SCHOOL OF MEDICINE IN SHARED FACILITIES

BASIC SCIENCE TEACHING	16,594	3,577	-	20,171
SHARED CLASSROOMS & STUDENT FACILITIES	8,070	1,599	-	9,669
SHARED SERVICE FACILITIES	3,174	-	-	3,174
<u>TOTAL</u>	47,499	5,176	12,596	68,445

Section E    Space Summary

SUMMARY OF NET AREAS - ASSIGNABLE TO THE SCHOOL OF DENTISTRY

PROGRAM	DENTAL UNDERGRAD	DENTAL GRADUATE	DENTAL AUXILIARY	DENTAL RESEARCH	TOTAL NET S. F.
PRECLINICAL TEACHING FACILITIES	15,475				15,475
MULTIPURPOSE LABORATORIES DEMONSTRATION & SUPPORT	6,636		4,339		10,975
MULTIPURPOSE CLINICS	58,995				58,995
ORAL DIAGNOSIS	8,195				8,195
ORAL SURGERY	4,685				4,685
ORTHODONTICS	925	8,310			9,235
PEDIATRIC DENTISTRY	9,163	1,022			10,185
CLEFT PALATE AND MAXILLOFACIAL	1,002	2,333			3,335
CONTINUING DENTAL EDUCATION		2,785			2,785
HEALTH ECOLOGY	3,225			1,075	4,300
ANIMAL FACILITIES	2,844			3,476	6,320
BASIC CLINICAL RESEARCH TRAINING	3,594			2,396	5,990
BIOCHEMISTRY	2,262			3,393	5,655
BIOMATERIALS	1,014			676	1,690
BIOSTATISTICS	308			462	770
GENETICS	1,608			2,412	4,020
MICROBIOLOGY	2,574			3,861	6,435
ORAL BIOLOGY	3,156			4,734	7,890
ORAL PATHOLOGY	2,655			1,390	4,045
PHYSIOLOGY	1,096			1,644	2,740
SPEECH PATHOLOGY	585			390	975

Section E Space Summary

SUMMARY OF NET AREAS - ASSIGNABLE TO THE SCHOOL OF DENTISTRY (CONTINUED)

PROGRAM	DENTAL UNDERGRAD	DENTAL GRADUATE	DENTAL AUXILIARY	DENTAL RESEARCH	TOTAL NET S. F.
ADMINISTRATION AND BUSINESS OFFICES	4,375	-	-	-	4,375
CLINIC ADMINISTRATION	1,305	-	-	-	1,305
PHOTOGRAPHY AND TELEVISION	2,620	-	-	-	2,620
STUDENT AND STAFF FACILITIES	12,930	-	4,135	-	17,065
SUBTOTAL	151,227	14,450	8,474	25,909	200,060

NET AREA ASSIGNABLE TO THE SCHOOL OF DENTISTRY IN SHARED FACILITIES

BASIC SCIENCE TEACHING	8,355	-	-	-	8,355
SHARED CLASSROOMS & STUDENT FACILITIES	8,927	-	-	-	8,927
SHARED SERVICE FACILITIES	10,459	-	-	-	10,459
TOTAL	178,968	14,450	8,474	25,909	227,801

PART TWO

Section E    Space Summary

SUMMARY OF NET AREAS ASSIGNABLE TO THE SCHOOL OF PUBLIC HEALTH

PROGRAM	TOTAL NET S.F.
DEPARTMENT OF EPIDEMIOLOGY	7,303
DEPARTMENT OF PHYSIOLOGICAL HYGIENE	7,720
SHARED (GENERAL PURPOSE)	994
SUBTOTAL	16,017

NET AREAS ASSIGNABLE TO THE SCHOOL OF PUBLIC HEALTH IN SHARED FACILITIES

BASIC SCIENCE TEACHING	868
SHARED CLASSROOMS AND STUDENT FACILITIES	4,851
SHARED SERVICE FACILITIES	964
<u>TOTAL</u>	22,700



PART TWO

Section E Space Summary

SUMMARY OF NET AREAS ASSIGNABLE TO APPLICANTS SPACE

	TOTAL NET S.F.
APPLICANTS SPACE	1,114
AREAS ASSIGNABLE TO APPLICANTS SPACE IN SHARED FACILITIES	
BASIC SCIENCE TEACHING	8,981
SHARED CLASSROOMS AND STUDENT FACILITIES	3,041
SHARED SERVICE FACILITIES	622
<u>TOTAL</u>	13,758

PART TWO

Section F Analysis

2. Provision for Future Changes in Program and Enrollment

The physical planning has provided for both change and expansion by (a) a plan that will permit lateral and vertical expansion and (b) a long-span structural grid with an integrated mechanical system which permits complete rearrangement of rooms and the relocation or addition of all mechanical services.

PART TWO

Section G (Applicable to replacement, renovation, rehabilitation or addition to present structure)

1. Present Physical Plant

<u>Present Buildings Occupied</u>	<u>Year Constructed</u>	<u>Year of Major Additions or Remodeling</u>	<u>Total Building Net Square Feet</u>
Jackson Hall	1912	1957, 1960, 1962, 1969	43,138
Millard Hall	1912	1957, 1958 1959	57,539
Owre Hall	1930	1946, 1966	56,446
Powell Hall	1933	1943	16,685
Variety Club Heart Hospital	1949	1957, 1964	47,722
Student Health Service	1949	1958, 1962, 1966	71,492
Mayo Memorial Medical Center	1954	1957, 1969	419,979
Masonic Memorial Hospital	1958	1961, 1963 1966	47,011
Lyon Laboratories	1952	1953, 1957 1966	28,042
Diehl Hall	1958	1963	131,877
Jackson-Owre Building	1958		27,389
Childrens Rehabilitation Center	1962		41,242
VFW Cancer Research Center	1958	1968	7,837
Stadium	1925 *1946		88,329 *10,980
Cardio Vascular Labs	**1957		4,975

\* Physiological Hygiene Laboratories only.

\*\* Existing building was remodeled to provide for these facilities.  
To be demolished when Unit "A" is constructed.

In addition to the above listed facilities, the University of Minnesota now rents space in eight buildings which provides needed areas for laboratories, offices, storerooms, class laboratory rooms, etc. The total amount of space occupied in these buildings is 27,708 sq. ft.

All of the above listed buildings are structurally sound and are of fireproof construction, which is reinforced concrete with exterior masonry walls and plastered interior masonry partitioning. The Mayo Memorial Medical Center is the only building which is structural steel framed. The buildings are presently adequately protected against fire hazards and a continual fire prevention program is enforced.

The general condition of the buildings is such that with modernization (remodeling and rehabilitation work) they are capable of several more decades of effective service. Please note that the Cardio Vascular Laboratories which are now housed in a wood frame building will be demolished when Unit "A" construction is started.

The interior mechanical systems and equipment has been updated in many of the later remodeling and building addition projects. Also, maintenance and repair of the buildings has provided to a degree an upgrading of these systems and equipment. There are, however, many of the mechanical and electrical systems that require replacement and modernization to provide first class buildings for future use. The construction of the new proposed facilities will release much of the space in the existing buildings which then can be rehabilitated to provide the necessary additional space for increased enrollments and expansion of Health Sciences at the University of Minnesota.

## PART TWO

### Section H systems

#### 1a. Animal Facilities

##### Animal Quarters Committee --- Planning Group

In January 1968, Mr. Elmer Learn, University Planning Coordinator, appointed a committee to assist in the planning and evaluation of the laboratory animal care programs of the Health Sciences Center. This committee is called the Animal Quarters Committee and is made up of the following personnel:

Dr. William Kubicek, Chairman  
Mr. Roland Kluver, T.A.C.  
A representative from Hammel, Green and Abrahamson  
Dr. Richard Varco  
Dr. Eugene Grim  
Dr. Frederick Shideman  
Dr. Wesley Spink  
Dr. C. M. Stowe  
Dr. Robert Mulhausen  
Mr. George Michaelson  
Mr. Phillip Harris  
Dr. Dwight Anderson  
Dr. Walter Mackey

This committee is currently assembling and evaluating the projected departmental animal housing needs. This information will enable the committee to make final recommendations regarding the type of facilities required, the amount of space and locations. It is recognized that some consolidation is essential for reasons of control and operation.

##### Current Animal Facilities

Currently the animal quarters of the College of Medical Sciences are located in the research areas of seven different buildings of the medical complex. The animals are housed in 129 rooms which are located near the laboratories in which the animals are used. Approximately 50% of the animals at this institution are cared for by personnel of departments using the animals. The remainder of the animals are under the care of personnel of the Research Animal Hospital.

##### Projected Animal Populations to 1974 (Dogs)

The Animal Hospital Committee has summarized the available information on projected space and animal needs in the following tables. These projected needs are based on the canine species since these figures are available and are representative of the needs for other animal species at this institution.

	Existing		% Dog Space of Total	No. of Rooms	No. of Dogs
	Net Square Feet				
	Total Animal Qtrs.	Dog Quarters			
Animal Hospital Committee	508	508	1.6%	4	60
Basic Sciences	13,002	1,046	3.3%	5	63
Clinical Medicine Departments	18,335	8,146	25.6%	24	814
TOTAL	31,845	9,700	30.5%	33	937

	1974 Projected Needs		% Dog Space of Total Space	No. of Dogs Possible at 12 Sq.Ft. per Dog
	Net Square Feet			
	Total Animal Qtrs.	Dog Quarters		
Animal Hospital Committee	1,000	1,000		.83
Basic Sciences	21,902	2,115	3.3%	176
Clinical Medicine Departments	41,188	16,407	25.6%	1,367
TOTAL	64,090	19,522		1,626

These figures were gathered in a recent survey of departmental expansion plans and indicate a 50% increase in space needs for animal quarters by 1974.

### Current Animal Populations

The latest animal population survey available indicates the following species and numbers are housed in the animal colonies of the College of Medical Sciences.

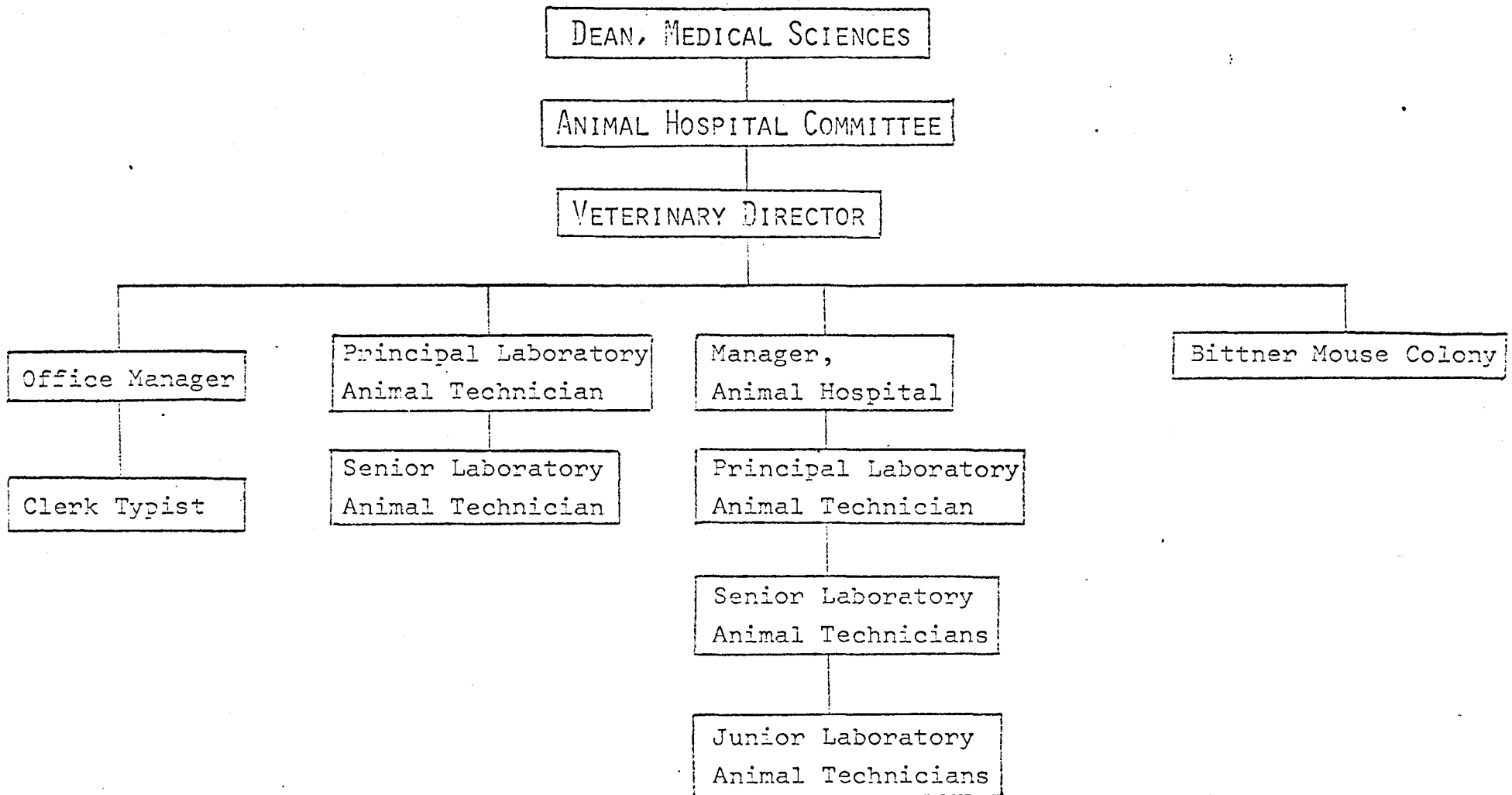
Bovine -	10	Rats -	6,250
Ovine -	4	Mice -	63,051
Porcine -	15	Guinea Pig -	506
Caprine -	10	Hamsters -	507
Primates -	64	Poultry -	373
Canine -	937	Chinchilla -	24
Feline -	126	Plus numerous reptile species	
Rabbits -	1,102		

Based on the projected need table above, it is anticipated that these species will also increase in approximately the same magnitude as the canine, or a 50% increase by 1974.

### Plans for Centralized Animal Quarters

The preliminary plans for the development of new animal quarters favor centralized animal facilities. There may be, however, some decentralization of a few departmental animal rooms based on functional considerations.

ADMINISTRATIVE ORGANIZATION AND LINE OF AUTHORITY FOR  
OPERATION OF THE ANIMAL HOSPITAL





### What is the Research Animal Hospital?

According to a recent survey there are approximately 72,000 animals of 24 different species maintained by the College of Medical Sciences for medical research purposes. These species include primates, dogs, cats, rabbits, guinea pigs, hamsters, gerbils, voles, white rats, and mice as well as a number of domestic animal species such as cattle, sheep, goats and swine. These animals are housed in 129 air conditioned rooms in seven different buildings of the medical college complex.

The Research Animal Hospital is the centralized administrative unit of the College of Medical Sciences which has been assigned the responsibility for the procurement, health, housing, and humane care of all the animals used for medical research at this institution.

### Administrative Organization of the Research Animal Hospital

Dean Robert B. Howard has appointed a faculty committee, The Animal Hospital Committee, to act as the policy making body in matters concerned with the care of laboratory animals. This committee is made up of faculty members experienced in the maintenance requirements of research animals. The chairman of this committee is Dr. William G. Kubicek, Professor of the Department of Physical Medicine.

The day to day direction of the Research Animal Hospital is the responsibility of the Veterinary Director, Dr. W. J. Mackey. The animal service personnel include an Animal Hospital Manager and an Office Manager and 24 laboratory animal technicians, technical personnel and office personnel. These personnel are responsible for the daily care of these extensive research colonies.

The Research Animal Hospital is entirely supported from funds received from the charges made against the participating departments for feed and care of their laboratory animals.

### Functions of the Research Animal Hospital

In addition to the administrative responsibility involved in the care and housing of the large research colonies, the Veterinary Director has research and consultative responsibilities as well. The clinical responsibilities involved in protecting the health of the animals are quite considerable. In addition to the above listed duties the Veterinary Director has major academic responsibilities in connection with the laboratory animal technicians training program. He also teaches a course in laboratory animal medicine to the senior students in the College of Veterinary Medicine.

The principal service functions carried out by the Research Animal Hospital personnel are as follows: the procurement of animals, supplies and equipment, maintenance of breeding colonies and stock animal pools as required, housing of animals during experimentation, provision of both routine and specialized care, and ancillary services such as cage washing, waste disposal, vermin control, and equipment maintenance.

In order to facilitate the highest quality medical research and efficient animal usage, the Research Animal Hospital also operates a canine blood bank as well as canine and feline quarantine programs. A very modern animal transportation truck is provided and maintained for use by participating departments. This vehicle is also used to pick up impounded animals from nearby municipal dog pounds under the authorization of the state Pound Law.

#### Summary

A large percent of the medical schools in the United States now operate their animal quarters as an institutional "central service" under professional direction. This trend is due to the growing complexity of modern medical research and to the evolution of laboratory animal care as a specialized discipline. Every effort is being made in the Research Animal Hospital to hire and retain a group of animal care personnel who are well trained and dedicated. Under these conditions, medical investigators and the taxpayers receive the most equitable, efficient and economical allocation of available services and facilities.

## PART TWO

### Section H Systems

#### 1. Audiovisual systems

##### Educational Resources (Audio-Visual Services)

###### Existing Organization and Facilities

The existing central audio-visual education program at the University of Minnesota is organized into three primary units. The Department of Radio and Television is responsible for closed circuit television and its related functions of production and distribution. It coordinates the broadcast programming for the University over the community Educational Television Station KTCA and operates Radio Station KUOM. This Department provides certain coordinating and back-up functions for satellite television operations in the University such as in the Health Sciences.

Currently, there are specialized Health Sciences television operations in anatomy, dentistry, eye-otolaryngology, medicine, pharmacology-physiology, physical medicine, and psychiatry. Some are limited, for example, to operations with portable equipment for monitoring and taping patient management and student performance. Others permit greater production and distribution of laboratory and clinical demonstrations as in anatomy and dentistry. Two shared lecture classrooms and laboratories in anatomy, dentistry, and pharmacology-physiology are equipped for television receiving.

The mechanical up-keep of the television equipment in the School of Dentistry is handled by the engineering staff from the Department of Radio and Television. A further example of television coordination at the University is the co-axial cable and audio cable link between the television control rooms in the School of Dentistry and the Department of Anatomy with the University's main CCTV production and distribution center. This link permits video taping of demonstration programs originating in these two areas, the receiving of television programs originating in other University areas, and the presenting of television programs to the community from the dental school and anatomy.

The Department of Audio-Visual Extension collects, catalogues, and distributes motion picture films, audio tapes, and video tapes for use of educational institutions, organizations, and other groups in Minnesota and adjoining areas. This non-print library of 8,300 titles covering all levels of instruction includes over 1,000 titles in the health sciences.

The Audio-Visual Education Service is the on-campus unit that provides audio-visual materials, equipment, services, and facilities for the faculty and staff of the University. Its several divisions provide a back-up function for the many audio-visual activities that are not provided within the departments of the University. It maintains a college level collection of films and film strips of over 1,500 titles, 200 in health sciences. This Service provides evaluation of materials and devices, bibliographies of non-print materials, in-service training, and projection personnel. Motion picture, still photographic, microfilm, transparency, and art work production facilities are provided. The Service can record and duplicate audio tapes. An engineering section maintains and installs all forms of instructional technology. Design of special facilities and consultation in many areas of audio-visual education are available.

These coordinating and back-up functions of the University's Audio-Visual Education Service are valuable and essential. The size of the University and the specialized audio-visual needs of individual colleges and units, make it necessary to maintain satellite audio-visual production operations. Two of these in the Medical School and School of Dentistry produce motion pictures, still photographs, slides, exhibits,

and other graphics for their teaching and research needs.

The lecture classrooms in the Health Science area are provided with projection screens and slide projectors, maintained by the University's Audio-Visual Service. All new construction is examined and studied by the central audio-visual units to ensure proper design and facilities to allow for use of audio-visual materials, devices, and techniques in these classrooms. Specialized facilities and needs are also examined by those areas concerned.

The Health Sciences at the University of Minnesota increasingly recognize the essentiality of developing systems for auto-tutorial learning and information retrieval. At the present time, there are a few electronic student study carrels within several departments of the Medical School. It is anticipated that within the next two years a section of the Bio-Medical Library in the Health Sciences Center will be converted to partial electronic study carrels. During the past two years, the Bio-Medical Library has been developing a computer based operation for information retrieval. An automated system for handling journals went into operation January 1968. Books and circulation records will be added to the system. By the summer of 1969, on-line operations utilizing cathode ray tube consoles will begin. It is expected that audio-visual materials will be included in this system, allowing users to have access to a unified record of all types of learning materials, both print and non-print. The Library is also planning to create a microfilm file of original journal articles from the most heavily used journals. This will allow easy reproduction of the most used materials and provide for remote transmission of documents to stations outside the Library for viewing and reproduction. For material used only occasionally, the original book or article will be used for electronic transmission. A grant application from the USPHS is now pending to begin developmental work on this system.

At the present time a special ad hoc committee, appointed by the President of the University, is studying new ways to strengthen the coordination of the University's Educational Resource Program including print and non-print areas. It has a prime purpose to expand the innovative and experimental functions of the program as well as the implementation coordinating and consultative functions.

#### Proposed Health Sciences Audio-Visual Services

During the planning of new physical facilities for the Health Sciences at the University of Minnesota, the Planning Office appointed several committees and groups to present proposals for the development of audio-visual services and other educational resources for the Health Sciences. Faculty committees representing the various units of the Health Sciences, determined the space and audio-visual needs for the teaching classrooms. Another committee worked on educational resources such as facilities for information retrieval and production of audio-visual materials and programs. Appropriate consultations have been carried out with representatives of the University's Department of Radio and Television and Audio-Visual Education Service. The committees agreed that auto-tutorial, audio-visual, and sophisticated electronic technology and systems will most certainly be utilized extensively in future health science education. In the face of rising enrollments, these innovative educational systems will permit more efficient teaching and learning for a greater number of students. Vast quantities of knowledge will be stored and retrieved more easily. The auto-tutorial system, for example, will allow the student to proceed at his own pace and separate subject matter into units commensurate to his own ability.

Currently, about 3,500 students are enrolled in Health Science programs. By completion of the first phase of the proposed construction (approximately 1975) over 5,000 are expected to be enrolled. The complexity of health science education and the expected enrollment increases, require a well-developed, self-contained health science audio-visual operation yet still related to and coordinated with the University's television and audio-visual departments.

Since the expansion of physical facilities for the Health Sciences will be implemented in stages over a number of years, the audio-visual services will have to be developed as fully as possible in the various phases of construction for tie-up with centralized facilities. Ideally, the audio-visual systems should be concentrated in and coordinated with an Instructional Resources Center adjacent to the Health Sciences Library. Long range planning is directed to this kind of consideration. To achieve the ultimate in educational resources for our Health Sciences Center would require the simultaneous construction of all the proposed health science units and a major commitment of space and funds now for an Instructional Resources Center. Funding limitations clearly prevent this.

#### Audio-Visual Services for Construction Unit A

In the first step of construction for which this grant application is made (Unit A in Phase I), educational facilities will include shared classrooms, basic science laboratories, specialized laboratories for the School of Public Health, and clinical, laboratory, and study areas for the School of Dentistry. The new lecture rooms will be planned with the most careful attention given to sight lines, acoustics, public address systems, blackboards, projection screens, slide and motion picture projection equipment and location, x-ray viewing, and television origination and receiving. Front, rear screen, and overhead projection will be provided in most classrooms. Television monitors will be connected to receive signals from dentistry's television studio, laboratories, and clinics and from within the classroom. Control of the classroom audio-visual facilities will be as automated as possible. Lighting will be diversified: fluorescent and incandescent, rheostated, ultraviolet for chalk boards. Conduit or accessible plenum and service spaces will be provided to permit an electronic tie-in of the classrooms with audio-visual production and distribution areas in future Health Science units. Since it is very possible that the lecture method of teaching may decrease and self-instruction increase, the design of the lecture classrooms will be sufficiently flexible where appropriate to permit easier remodeling to tutorial classrooms. Seminar rooms in Unit A will be equipped for projection of slides and movies and in some instances sufficiently equipped for some self-instruction with audio-visual materials. Some general purpose study carrels or areas with potential for information access are expected to be provided in Unit A. The appropriate communication network will be provided for television receiving in the teaching laboratories for the basic sciences and School of Public Health.

The School of Dentistry will have the majority of its educational facilities in Unit A. Included for dentistry will be one of the several audio-visual substations in the overall future Health Sciences audio-visual operation. This station will have a centralized area for a television-motion picture studio, television control room, and facilities for production and storage of still photographs, slides, audio and video tapes, art work, and other related graphics. The dental school's central audio-visual area will have installed initially electronic communication with the University's main CCTV production and distribution center, the lecture classrooms and the laboratories, clinics, and specialized study areas in the school. Further, there will be conduit space for eventual link-up with a future Health Sciences central audio-visual production and distribution installation. Also, television origination will be possible within certain

laboratories and clinics.

The faculty of the School of Dentistry has recognized clearly the advantages of auto-tutorial and programmed learning. A special subcommittee on learning resources for the dental school studied the potential of such innovations. From this study, the architects have been asked to design study carrels for the multipurpose teaching laboratories, the specialty and multipurpose clinics, and the reading room. The carrels will be capable of providing information via films, tapes, slides, and programmed instruction; they will be self-contained with potential for cable connection to a central information storage facility. Cathode ray tube remote computer terminals will be installed so that information retrieval from the Bio-Medical Library and a central audio-visual facility will be feasible eventually. Currently, the dental school is using portable television equipment for monitoring and taping student performance with capabilities for instant replay of the tapes. This effective method of teaching will be expanded in the new dental school.

#### Proposed Audio-Visual Services for Other Construction Units

While this application requests funds for educational facilities just in construction Unit A, the total plans for expanded Health Sciences physical facilities are so interrelated and interdependent it seems essential to describe here to some extent the long range plans for audio-visual services in the other planned Health Science construction units.

It is anticipated that the existing still photography and motion picture production area in the Medical School will be expanded in its present or a new location and will serve as an audio-visual substation to provide some specialized needs of the Medical School. Classrooms to be remodeled will have improved systems for audio-visual projection and television viewing. A new 350 seating classroom for patient viewing and clinical teaching with 180° seating and a thrust stage will require specialized multi-slide projection, television receiving and origination, and special acoustic considerations.

When feasible, audio-visual facilities and services should be centralized to avoid duplication of space, hardware, and technical staff. However, because of the size, complexity, and specialized instructional needs of the Health Sciences some self-instructional and audio-visual production areas will be developed in several areas in the Health Sciences for convenience to the teaching areas such as the clinics and laboratories. Provisions will be made for television origination in hospital stations, clinics, laboratories, and other appropriate teaching areas. As will be true for dentistry in Unit A, other departments will develop a limited number of auto-tutorial, audio-visual study carrels (both WET and self-contained) close to their clinics and laboratories for convenience to the teaching activity and for experimentation.

Cathode ray tube (CRT) sending and receiving equipment will be installed in a number of the Health Science areas such as hospital nursing stations, laboratories, pharmacy, and admissions and out-patient medicine examining rooms, central scheduling, and seminar-conference alcoves.

While audio-visual substations and widely located audio-visual activities will be present in the Health Science Center, the planning for expanded physical facilities clearly recognized the necessity of having a centralized Health Science audio-visual production and storage facility related to and coordinated with the University's T.V. and audio-visual departments.

Long range plans for utilization of closed circuit television in the Health Science Center include consideration for a central production facility which would provide for - in addition to television - motion picture, graphics, and photographic production. Such a central installation would make available to the Health Sciences faculty production facilities and supporting personnel in all areas of instructional technology. In addition to production facilities, this central installation would be the hub of a distribution system in the Health Science Center. Electronic interconnection to classrooms, laboratories, hospital stations, seminar rooms, and clinics, departmental production areas, self-instructional carrels, and the Bio-Medical Library would be controlled from this central point. This will permit information to flow in all directions as needed.

The departmental audio-visual substations would be cable-connected to this central facility so that recordings could be made of materials originating in these locations and/or materials could be distributed to classrooms, seminar rooms, or carrels from such origination points. For other types of specialized recordings that would not require a permanent installation, portable equipment would be available from the central facility as required. Tapes made through the use of portable equipment could then be available for distribution through the system as needed.

Long range thinking also includes consideration of a T.V. interconnection with affiliated hospitals in the Twin City area. Such a communication system could be used for instructional, clinical, and research applications in the Health Sciences. It could also be extended to other health science centers in the region and could be a segment of any national system which might develop. The Health Science Center termination point would be in a central facility to provide for origination from any of the production areas in the Center for transmission to hospitals or for distribution of materials received from the hospitals to viewing rooms within the Center.

Cataloguing of recorded materials would be a function of the Library to integrate these materials with the whole range of instructional resources available to students and faculty. Electronic and other distribution equipment would be housed near the central production facility for greater efficiency and economy of operation. Stored materials, however, would be available in the Library by dial access through the distribution system and would be catalogued in the Library. Faculty would go to the production facility for assistance in planning and production of materials; students and faculty would go (either electronically or in person) to the Library for access to stored materials.

As reported in the section above on existing facilities, the Bio-Medical Library is developing an on-line transmission operation for distributing bibliographies and library materials to different receiving stations in the Health Sciences Center. We clearly expect this information transmission system to be well developed in our new Health Sciences facilities.

Computer-assisted instruction (CAI) will be included in this information transmission system. CAI permits a more sophisticated and flexible auto-tutorial capability. Larger quantities of information can be stored and retrieved more efficiently with this system than is possible with the more conventional tapes, slides, etc. Further, the student is able to "converse" with the computer and becomes an active participant in the learning process. The computer acts like a private teacher giving him immediate reinforcement for correct answers and appropriate responses to errors. Students are directed automatically to more challenging material or remedial instruction on the basis of their performance. Computers in education are able to monitor the original learning process and establish patterns of response indicating the perceptive learning style of the student.

At the present time, we have in our Health Sciences Center a Control Data Corporation 3300 computer with sufficient capacity and in the appropriate location to be used for CAI in our Health Sciences educational program. This computer is connected by cable to a CDC 6600 computer off campus to permit increased capacity for CAI in the Health Sciences if needed.

Faculty members in the Health Sciences are preparing themselves for participation in computer-assisted instruction. Some of the Medical School faculty are working now in CAI with the University's Department of Learning Behavior. The Medical School's new Department of Family Practice is developing a plan to utilize CAI in the training of family practice specialists. We expect to develop CAI programs within the Health Sciences Center and to use as appropriate programs available elsewhere. Also, if a national network is developed for CAI, we would want to tie our system into this network.

The new curriculum of the Medical School and other Health Science units are designed to utilize more self-instruction. This concept has evolved after numerous meetings, discussions, and consultations to consider the future direction of health science education. The chairman of the Education Resources Committee described the concept of new learning methods in a special report. Excerpts of the report are given below.

For several decades there has been a revolution in the field of communications. We have developed numerous technological tools to store, retrieve, and transmit knowledge to students. Previously we had the printed page as the only information storage mode; however, along with the rapid increase in knowledge, the time and cost to produce books and the difficulty to change obsolete sections, other media for storing knowledge may supplant the book as the major learning vehicle. These new communications techniques allow us to stimulate the student through all his senses. The impact of these communication tools and their use in education are changing our concepts of the learning process and are providing us with educational research methods not previously envisioned.

Students in primary and secondary schools and in colleges are being educated with a multi-media approach. They are not only using books and other printed materials but television, computers, computer-assisted instruction (CAI), programmed learning, video tape, tape recorders, motion pictures, photographic slides, single concept visual and aural tapes, independent study, self-pacing instructional methods with print and non-print materials and dial-access retrieval systems. These approaches have de-emphasized the use of the classic lecture to large groups. They have encouraged a dialogue technique in which the students with supervision become the informal teachers of small groups.

The concept of a Learning Resource Center with its multi-media approach to learning involves a change in attitude towards facilitating the educational process. In a Learning Resource Center space is needed beyond the usual allotment for classrooms. These spaces are for (1) learning, (e.g., carrels), (2) production, origination, and support and (3) storage and retrieval.



A Learning Resource Center has a potential far beyond the confines of the University campus. It could function within what University of Minnesota President Malcolm Moos calls the "communiversities." All the affiliated hospitals in the Twin Cities and State can be an extension (satellite Health and Medical colleges) of a Health Sciences Learning Resource Center and its massive bank of teaching resources. The Learning Resource Center could be the base of the Postgraduate Health Science Education in all disciplines. It would be able to reach into the family doctor's local hospital, office and home, providing him with knowledge such as up-to-date drug information from our computers and the latest medical advances. The University of Minnesota Hospitals could provide teaching materials for every hospital in the State for the training of all types of hospital personnel. The Center could be used to carry on an educational health program for the general public.

With a commitment to a Learning Resource Center, the University could take full advantage of its faculty's teaching talents, could provide an optimum environment for student learning, and could extend all of the University's health resources through its Health Science graduates into the community for the benefit of each citizen. With such a Learning Resource Center we would continue to be an educational leader in making our Minnesota community The Learning Society.

APPENDIX

UNIVERSITY OF MINNESOTA HEALTH SCIENCES PLANNING COMMITTEES

COMMITTEE FOR THE STUDY OF  
PHYSICAL FACILITIES FOR THE  
HEALTH SCIENCES

Appointed October 1964

Elmer W. Learn, Chairman  
Director of Planning &  
Executive Asst. to President

John H. Westerman Exec. Sec.  
Director  
University Hospitals

Gaylord W. Anderson  
Professor and Director  
School of Public Health

McCollum E. Brasfield  
Assoc. Prof. & Asst. Director  
Variety Club Heart Hospital

Winston A. Close  
Prof. & Advisory Architect  
Advisory Architecture

Lyle A. French  
Prof. & Director  
Neurosurgery

Edna L. Fritz  
Prof. & Director  
School of Nursing

Sterling B. Garrison  
Asst. to the Vice President  
Office of V.P., Business Adm.

N.L. Gault, Jr.  
Prof. & Assoc. Dean  
College of Medical Sciences  
(resigned September, 1967)

Eugene D. Grim  
Prof. & Head  
Physiology

Mellor R. Holland  
Prof. & Asst. Dean  
School of Dentistry

Robert B. Howard  
Dean  
College of Medical Sciences

Robert J. Isaacson  
Prof. & Chairman  
Orthodontics

Ione M. Jackson  
Assoc. Prof. Emeritus  
School of Dentistry

James R. Jensen  
Prof. & Chairman  
Operative Dentistry and Endodontics

Frederic J. Kottke  
Prof. & Head  
Physical Medicine & Rehabilitation

Richard N. Magraw  
Prof.  
Medicine  
(On leave of absence)

Robert O. Mulhausen  
Asst. Dean  
College of Medical Sciences

Hugh G. S. Peacock  
U. Planner & Assoc. Prof.  
U. Planning & Architecture

Peter H. Sammond  
Assoc. Director  
University Hospitals

Erwin M. Schaffer  
Prof. & Dean  
School of Dentistry

William G. Shepherd  
Vice President  
Academic Administration

James W. Stephan  
Prof.  
Program in Hospital Adm.  
School of Public Health

William T.S. Thorp  
Dean  
College of Veterinary Medicine

Lawrence C. Weaver  
Dean & Prof.  
College of Pharmacy

Consultant:  
Edmond K. Nelson, Representing  
James A. Hamilton, Assoc.

**SUBCOMMITTEES APPOINTED BY  
THE LEARN COMMITTEE**

**ANCILLARY SUBCOMMITTEE**

Frederic J. Kottke, Chairman  
Professor & Head  
Physical Medicine & Rehabilitation

Eleanor M. Anderson  
Assoc. Prof.  
Public Health Nursing

Eugenijus Gedgaudas  
Assoc. Prof.  
Radiology

Anna T. Hampel  
Assoc. Prof.  
School of Dentistry

Ruth F. Hovde  
Professor & Director  
Medical Technology

William G. Kubicek  
Prof.  
Physical Medicine & Rehabilitation

Arnold Lazarow  
Prof. & Head  
Anatomy

Elizabeth Whitney  
Asst. Prof.  
School of Nursing

**BASIC SCIENCES SUBCOMMITTEE**

Eugene D. Grim, Chairman  
Prof. & Head  
Physiology

Ellis S. Benson  
Prof. & Head  
Laboratory Medicine and Clinical Labs

Richard G. Bond  
Prof. & Director  
Environmental Health  
School of Public Health

S. Gaylen Bradley  
Prof.  
Microbiology

William J.H. Felts  
Prof.  
Anatomy

Isabel M. Harris  
Assoc. Prof. & Asst. Director  
School of Nursing

Robert J. Isaacson  
Prof.  
Orthodontics  
School of Dentistry

Joseph Larner  
Prof.  
Biochemistry

Jack W. Miller  
Prof.  
Pharmacology

Lee W. Wattenberg  
Prof.  
Pathology

**CLINICAL MEDICINE AND HOSPITAL  
SUBCOMMITTEE**

N.L. Gault, Chairman  
Assoc. Dean & Prof.  
College of Medical Sciences  
(resigned September, 1967)

Lyle A. French, Chairman  
Professor & Head  
Neurosurgery

Richard W. Anderson  
Prof.  
Psychiatry

Charles A. Branthaver  
Asst. Prof.  
Pediatrics

James B. Carey  
Prof.  
Medicine

Nancy L. Cook  
Asst. Prof.  
School of Nursing

Donald W. Cowan  
Prof. & Director  
University Health Service

Guilo J. D'Angio  
Prof. & Director  
Radiology & Radiation Therapy

Robert J. Gorlin  
Prof.  
Oral Pathology

Eugenijus Gedgaudas  
Assoc. Prof.  
Radiology

Norman O. Holte  
Prof.  
Oral Surgery

Florence J. Julian  
Director  
Nursing Service

Richard C. Lillehei  
Prof.  
Surgery

Robert O. Mulhausen  
Asst. Dean  
College of Medical Sciences  
(succeeded N.L. Gault)

Konald A. Prem  
Assoc. Prof.  
Obstetrics & Gynecology

Paul G. Quie  
Assoc. Prof.  
Pediatrics

Peter H. Sammond  
Chairman: Hospital Task Force  
Assoc. Director  
University Hospitals

James W. Stephan  
Prof. & Assoc. Director  
Program in Hospital Adm.  
School of Public Health

F.H. Van Bergen  
Prof. & Head  
Anesthesiology

Paul C. Winchell  
Assoc. Prof.  
Medicine

#### PUBLIC HEALTH SUBCOMMITTEES

Gaylord W. Anderson  
Prof. & Director  
School of Public Health

Richard G. Bond  
Prof.  
Environmental Health  
School of Public Health

Allyn G. Bridge  
Assoc. Prof.  
Maternal & Child Health  
School of Public Health

James H. Matthews  
Assoc. Prof.  
Anesthesiology

Edgar L. Makowski  
Asst. Prof.  
Obstetrics & Gynecology

Louis H. Muschel  
Prof.  
Microbiology

Robert W. Schwanke  
Asst. Prof. & Asst. Director  
School of Public Health

Garland K. Lewis  
Assoc. Prof.  
School of Nursing

Lee D. Stauffer  
Asst. Prof. & Asst. Dir.  
School of Public Health

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