Report of the Task Force on Campus Infrastructure and Technology

July, 1991

Preface

Within the reader will find executive summaries, full text reports, and relevant supporting documentation for three major components of the work of the Task Force for Campus Infrastructure and Technology. The Task Force found it necessary to focus on what it believed to be the three fundamental area of infrastructure and technology: a) physical environment/ office-administrative environment; b) information access; and c) information technology. These areas comprise the "three-legged stool" of campus infrastructure and technology.

The recommendations of this Task Force will require a substantial amount of money, to implement. The reason for the immensity of the price tag is that the University of Oregon has not properly funded its various infrastructure components. The infrastructure is broken. The University will have to commit gradually increasing amounts of its resources to infrastructure if it ever hopes to become a serious comparator with its sister institutions in the AAU, or to continue to attract and retain faculty and students.

Over the course of the Task Force's work a number of university faculty, students and staff have contributed to the shaping of recommendations as members, information providers, and staff assistants.

George Shipman, Chair	University Library
Darby Dyar	Geological Sciences
Roger Haydock	Physics
Craig Hickman	Fine and Applied Arts
Richard Brown	History
Sergio Koreisha	Decision Sciences
Dave Soper	Physics (FAC & Senate)
Drew Braun	Graduate Student Representative
Patrick Chinn	Undergraduate Student Representative
Larry Fincher, ex officio	Information Resources & Services
Dan Williams, ex officio	Vice President for Administration

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Ray Arkin	Computing Center
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Chapter I — Executive Summary

This summary includes the essence of recommendations developed in Chapters III, IV, and V.

A. Physical Environment/Office-Administrative Environment

As the Task Force on Campus Infrastructure and Technology commenced its studies, it first cast a wide and encompassing net to identify Infrastructure elements. As originally conceived Infrastructure included but was not limited to instruction environment, office and administrative environment, general physical plant facilities, campus security, campus mail services, campus parking and transportation, campus telecommunication services, University human resources, including employee assistance programs, child care, environmental health and safety.

Preliminary reviews indicated that in the time allotted, the Task Force could not possibly address all infrastructure elements in sufficient detail. It focused its efforts, therefore on two areas critical to both faculty and students: classroom and office environments and basic physical plant facilities.

The Task Force makes the following recommendations in these two areas:

Classroom and Office Environments

- The University of Oregon administration should authorize a three to five year *$500,000* ± program to improve classroom spaces based on an audit checklist developed from the faculty and student "Bill of Rights for Teaching and Learning at the University of Oregon" drafted by Task Force member Richard Brown.

- The University Administration should establish a standing Classroom Environment Committee made up of officers of instruction, GTFs and a representative number of students. The committee would review progress on the classroom improvement program, recommend additional classroom improvements, request annual classroom space evaluations, conduct surveys of teaching faculty to identify otherwise unidentified problem areas.

- The Vice-President for Administration should be specifically designated as the senior administrator responsible for the continuous monitoring, maintenance, and physical and technological improvement of classroom spaces to sustain proper standards. The Vice-President should exercise this responsibility through and by the Director of the Physical Plant.

- University Planning, Physical Plant, Academic Affairs, Computing, Library/Instructional Media Center representatives should develop minimum environmental standards for University classrooms, studios, and laboratories; no classroom, studio, nor laboratory should be built or modified after those standards have been established unless the minimum standards are met or exceeded.

- The Physical Plant staff should develop mechanisms and procedures for identifying issues of **classroom** maintenance, cleanliness, and safety which result in 24-hour or less remedial service. During their daily cleaning activities, and based on a classroom environment check list,

custodians should take note of materials or equipment needing repair and report them to the proper Physical Plant maintenance office at the end of each shift.

• University Planning, Academic Affairs, Physical Plant, Computing, and Library/Instructional Media Center representatives ought to establish minimum standards for faculty offices at the UO. No new offices should be created nor should existing offices be renovated or modified unless they comply with the new standards established.

Basic Physical Plant Facilities

• Formalize, through establishment of a standing committee and designated responsible administrators, a phased plan to address the needs of the disabled on the campus. Estimated costs for remaining projects is $1 million.

• For at least the next ten years, the central administration of the University should consciously protect the Physical Plant budget from further reductions. The problem over the past two decades has been that carefully detailed budgets to address capital repair, renovations, rehabilitation have not been fully funded by the Legislature. Further, in making mandated University-wide budget cuts to meet reduced state fund appropriations, the Physical Plant budget has been targeted as the deep pocket to meet a significant portion of campus reductions.

• This Task Force, therefore, recommends that the Physical Plant funding not be used by the central administration to make up future budget deficits. To preserve and restore University facilities, the backlog of deficiencies resulting from deferred maintenance of the past two decades must be addressed. If appropriations in the amount of $10 million the first biennium, $12 million in the second biennium and $14 million in the third biennium were to be fully funded, the building structure needs of the campus could be addressed in six years. By spreading the amounts *from state appropriations* over the more realistic ten to fifteen year span, the Task Force believes restoration of campus facilities can be assured.

• The current 9.8% of the Indirect Overhead Recovery Costs allocated to Physical Plant operations and maintenance should be increased substantially.

B. Information Access: Library Services

Resource allocations at the levels described in this study are needed to achieve an adequate level of library support for current programs. It is fair to say that the infrastructure of the Library has been chronically deficient for decades. The proposed improvements are clearly in the spirit of enhancing and modernizing the climate for instruction and research. Library facilities, collections, and services are highly visible indicators of the general quality of academic life at a university, and are important factors in competitive recruitment and retention of students and faculty. Increased investment in the University Library as a primary component of the academic infrastructure will be an important part of any overall plan in this regard and is vital to the long-term viability of the institution.

The detailed report/recommendations in Chapter IV were provided by the University Librarian after prolonged discussions within the Task Force. The report/recommendation package stimulated even more discussion because of the complexity of the issues and the scale of need outlined by the document.

Acquisitions Budget

Increased acquisition budget to provide for the purchase of current monographic publishing (increase of 15%, $150,000), increased serials budget to offset increased subscription costs as well for the purchase of additional titles, (increase of 15%, $300,000), and creation of a retrospective purchasing fund for filling in existing gaps in the collection, large sets, scholarly editions, etc., $375,000. These recommended increases do not take into account any needs, either current or retrospective, for new or expanded programs. Total: $825.000 (recurring)

New Positions

In past years the Library's acquisition budget was the "sacred cow." When library funds were available, virtually the full amount has gone to the acquisition budget. Funding has not been provided for the staff necessary to acquire, process, and serve these collections. The Library organization requires an infusion of ten to fifteen positions (classified and faculty) per biennium for three consecutive biennia in order to meet the current service requirements of the UO. The cost per biennium will vary given the mix of faculty and classified positions. Minimum cost per biennium is $250,000 without OPE.

Instructional Media Center

The IMC equipment is in immediate need of replacement and the current inventory of equipment is approximately $750,000. $100,000 per year (recurring) is necessary for replacement on a 7-1/2 year amortization cycle. Additionally, Ed-Net requires the creation of a distance learning classroom at a cost of $150,000 (non-recurring). Ongoing support costs for distance learning participation will cost $45,000. In order to provide for the centralized distribution of media services to all classrooms via UOnet, $600-800,000 non-recurring is needed. This will require the creation of the IMC distribution point and the equipping of all classrooms with UOnet and the proper media hardware.

Library technology

Acquire "alternate" databases such as the type currently only available in CD-ROM format (but not restricted to the existing titles) and loaded into Janus, $200,000 (recurring). Some additional CD-ROM services will also be necessary and will not become part of Janus. Cost for database licenses and system enhancement to accommodate these databases is included in this amount.

Janus does not contain the 460,000 catalog records for most materials acquired prior to 1976. This represents a major deterrent to scholarship, particularly for those disciplines dependent upon a body of literature that is current as well as retrospective in nature. Conversion to machine-readable format is necessary for the Library to load these records into Janus. Cost: $1,100,000.

Additionally, the Library has great need of equipment funding in order for staff to conduct their work on behalf of faculty and students. A total of $100,000 per year (recurring) is required for these purposes. A Library equipment budget would support the purchase of equipment to replace obsolete microcomputer technology, OCLC hardware, technical/ administrative services, obsolete equipment, etc.

Supplies and Services

Supplies and Services budgets at the UO are pathetic. The library requires at least an additional $150,000 per year for S&S to meet current requirements.

As stated above, the detailed statement supporting these recommendations is attached. These recommendations do not meet the entire Library need but, if funded, would constitute substantial progress towards proper funding for the University Library.

Totals

Grand Total Recurring	$1,670,000
Grand Total Non-Recurring	$1,850,000 - 2,050,000

C. Information Technology: Computing and Network Services

Support for Information Technology at the University suffers from a lack of stable, predictable, ongoing funding, from a lack of attention to and funding for a number of specific areas, and from an organizational structure stressed by rapid technological change. Some specific areas critically in need of improvement are summarized here.

Faculty Desktop Computing

Faculty desktop computing with appropriate functionality should be made available to every regular faculty member. Consideration should be given to including as part of the University benefits package partial subsidies for faculty computer purchases. Furthermore, procedures should be set for retiring or reallocating obsolete equipment. A formal fiscal plan should be drawn up for the 1993/95 biennium, with special preliminary funding in the 1992/93 fiscal year.

Cost: potentially $2 million in one-time expenses and $400,000 in recurring expenses.

Central Facilities and Support

Demand for academic mainframe CPU will continue to double every 3 to 5 years at least through the end of the decade. Stable funding to upgrade central processing capacity and computing services will be needed to finance this growth in demand. Services should concentrate on storage, communications, support for distributed microcomputers, and specialization that is most cost efficient in larger scale central equipment and staff configurations. In addition another separate funding mechanism should be established to maintain and upgrade administrative systems.

The Computing Center should provide much better access to large data sets for social science research. Consideration should be given to (a) an improved tape handling system, (b) installation of an optical jukebox system and conversion of tapes to this format, (c) additional increase in the amount of available academic disk space, (d) increased user services support for researchers using remote databases by network.

Gradually over the next 2 years Computing Center operations should be expanded to 24 hours/day.

Cost: $250,000 in recurring expenses.

Network Connectivity

Network cable should be extended into every academic space (e.g., classroom, lab, studio, library, and office) and selected administrative and auxiliary areas (e.g., academic support offices, residence halls, and health services). Cable should be sufficient in design capacity to support data and video services. The network design should consist of a high speed backbone (100 million bits/sec replacing as needed the 10 million bits/sec now used) with ubiquitous Ethernet connections. This network should be maintained 24 hours/day. In addition, remote access capability should be expanded to support members of the University of Oregon community who need better access to network resources from off campus (e.g., homes, off campus residences, and cities throughout the state and nation). Furthermore off-campus access for such valuable networked IT resources such as library catalogs, wide-area e-mail, remote databases, access to supercomputing, NorthWestNet computing resources, specialized facilities (e.g. national labs, telescopes), and Ed-Net should be funded at levels commensurate with demand.

Cost: $350,000 in one time expenditures and up to $150,000 in recurring costs.

Networked Computing Resources and Support for Distributed Computing

During the next five years, use of the campus network for multimedia electronic communications, shared file systems, shared and distributed databases, campus-wide information systems, access to specialized computing and input/output resources, and client/server computing will increase rapidly. University Computing should take the lead in identifying and deploying novel network resources, in advertising opportunities for access to remote resources, in creating standards, and in assisting users in managing the increased complexity of a distributed computing environment. Special attention should be given to integrating the various methods now in use for shared file access, to providing easy to use and ubiquitous electronic mail, and to supporting PCs and Macintosh computers acting as graphical front ends to network resources.

COST: up to $100,000 in recurring expenses.

Student Access to Information Technology

Student microcomputer access should be upgraded over the next 4 years to current technology and greatly expanded by creation of general purpose and discipline specialized laboratories. A minimum standard of five hours of access per student per week should be set.

Cost: $860,000 in one time expenditures and $350,000 in recurring support costs

Decentralized Support

Although basic user support for departmental computing should be the responsibility of individual units, the Computing Center should assist in coordinating such activities among departments and should provide basic user support where adequate departmental support does not exist. Centrally funded support for microcomputers and departmental computing should be reorganized and centralized, and expanded within the Computing Center to provide high quality second-level support. Departmental computing facilities should be expanded with local area networks that provide the best fit of departmental needs to the information technology used in teaching and research. Procedures should be set to assure coordination

between central and department support for matters such as hardware configuration, software standardization, and training of staff.

Cost: $90,000 recurring expenses for central support and software.

Security of Information Technology

Security of IT must be improved with procedures: to minimize electronic duplication that violates copyrights; to maintain privacy and integrity of electronic databases such as student records; and to insure physical security of IT equipment in campus facilities.

Cost: Reallocation only.

Organizational Improvement

Shared Information Technology (IT) is currently provided by a variety of organizations including University Computing, the University Library, Telecommunications, and computing facilities in a number of academic and administrative units. Further decentralization is expected. Improved communication and coordination among IT provider organizations is essential. Consideration should be given to the establishment of a University coordinating committee or function-specific task forces and to organizational restructuring of central IT leadership possibly strengthening the position of the Vice Provost for Information Resources and Services.

Continued and rapid technological changes will bring about a plethora of management problems. Techniques will need to be developed to rapidly introduce new high-leverage low-cost technologies when they are identified, to phase out existing technologies and hardware as they become obsolete, to manage corresponding requirements for organizational and staffing change, and to keep track of the rapidly growing demand for IT. University offices providing IT should be given clear organizational responsibilities for services that are increasingly overlapping. This includes units such as University Computing, Technical Science Administration, Instructional Media Center, Telecommunications, and the Continuation Center.

Cost: organizational and support.

Chapter II - Introduction

A. **The Charge**

The March 26, 1990 appointment letter for the Task Force on the Campus Infrastructure and Technology charged the Task force to become familiar with a wide range of interrelated issues including:

1. Understanding the revolutionary effect of computing and communications on research, teaching, and departmental administration.
2. Strategies for providing access to computers and other equipment necessary for research and instruction.
3. Shared facilities.
4. Centralization vs. decentralization.
5. Access to off-campus facilities.
6. Strategies for delivering educational services (such as Ed-Net) off-campus.
7. Strategies for improved Library support.
8. Levels of support from other administrative units.
9. Theft / security.
10. Access to new and better space for expanding programs.

The task force was charged further to "gather information about these issues, look at trends, identify opportunities, discuss alternatives, and develop a set of strategic recommendations for action at the institutional level."

This Task Force faced a particularly difficult job in pulling together information since little previous planning work exists on many of the areas of interest. There was evidence that infrastructure has been sacrificed in order to pay the price for recent advancements in other areas at this University and is particularly in need of attention.

B. Definitions

Definitions were written to guide the Task Force work:

Infrastructure--All institutional functions, independent of funding source, that support the primary missions of instruction, research, and public service. This includes the physical plant facilities, the human resources that support students and faculty in their primary mission activities, and the fiscal resources needed for the people, services, and supplies that maintain the facilities and activities. Information technology which weaves together the physical, human, and fiscal resources of infrastructure will be examined in terms of access, communications, capacity, and management of information as a resource.

Technology--All kinds of digital and analog devices that are available today to assist persons in performing functions within the infrastructure. Among the most prominent are fiber optics media that are networked with devices such as computers, electronic library catalogs, video transmissions, and voice communications. Stand-alone devices for research, teaching, and administration are also included.

C. Scope

Initial work on the scope of the issues and topics expected evaluation as to current status, comparison to peer standards and the specific needs of the UO, and recommended levels of development over the next five years (1990-1991, 1991-1993, and 1993-1995 biennia). Plans were to propose both a budget request and a time line for each topic to be evaluated. Long lists were developed and evaluated and sorted (See Appendix A).

In June 1990 the Task Force issued its preliminary report. That report expressed the Task Force's frustration in dealing with the broad set of issues with so little past work done on this subject at the University of Oregon. Indeed, the most vexing job facing the Task Force continued to be the definition and scope of its efforts. After the preliminary report was released, it became obvious that the Task Force would have to tighten its focus even more in order for a realistic agenda to be created.

A core list of issues was developed to be dealt with in the coming months. Some issues were to be treated simply with brief statements of the Task Force's view, and others were deferred for Later action (probably by a different group).

The work was focused in three subgroups and came to be viewed as three legs of a stool supporting infrastructure functions: physical environment of the classroom and administrative offices; information access through library services; and information technology as provided through computing and network services. Subgroup work led to the chapters that follow with recommendations for each "leg" or domain of infrastructure and technology.

Chapter III — Physical Environment/Office-Administrative Environment

The Task Force began its deliberations on this subject by recognizing the enormous scope of the words infrastructure and"physical environment." The Task Force decided to limit its considerations to the physical environment. It should be noted that the campus is 115 years old and shows its age in unsettling ways. Early in the group's deliberations, Professor Richard Brown submitted for discussion his "Bill of Rights for Teaching and Learning" dated June 15, 1990 which follows:

"PREAMBLE

"Classrooms at UO are, generally, disgraceful both in their regular state and their maintenance. Of our national peer-group of universities and the members of OSSHE, we undoubtedly have the worst classrooms in the nation and the state.

"A BILL OF RIGHTS FOR TEACHING AND LEARNING

"We the Faculty and Students of the University of Oregon, in order to form a more perfect union of teaching and learning, promote the general welfare of education, and secure the blessings of knowledge to ourselves and future generations of faculty and students at the University of Oregon, do ordain and establish the following Bill of Rights for Teaching and Learning at our university:

"Every faculty member and student has the right to:

- "A classroom that is a pleasant place for teaching and learning with good, bright lighting, walls that are brightly but tastefully painted, and furniture (chairs for students, table for instructor).
- "A classroom with an adequate blackboard, cleaned daily and supplied with chalk and erasers.
- "A classroom whose electronic equipment (if there is any) and electric lights are always in working order.
- "A classroom with full built-in, technologically up-to-date audiovisual capacity.
- "A classroom whose windows (if there are windows) have venetian blinds or shades that are always in repair and in working order.
- "A classroom whose air circulating system (if there is one) is silent. (Several classrooms have no windows - which cause the use of air circulating systems which are very noisy. Also need artificial light.)
- "A classroom with a built-in electric clock.
- "A classroom in which the end-of-period and beginning-of-period bells are clearly audible.
- "A classroom free of outside noise during exam week. (Don't plan noisy Physical Plant work during finals week).

"Every faculty member has a right to:

- "A lectern in each classroom.
- "An office of adequate size, adequate furniture, and with bright, pleasant lighting and decor, for work and consultation with students.

"All faculty and students have a right to:

- "An administration and staff that will enforce this Bill of Rights of Teaching and Learning, and will respond promptly and effectively when faculty or students report classroom deficiencies."

Submitted along with the Bill of Rights was a second document patterned after the first listing specific examples of unacceptable classroom environmental conditions.

The Task Force's initial response to the documents was one of bemusement but the members quickly concluded that Professor Brown's declaration clearly and succinctly articulated the aspirations and frustrations of most (if not all) faculty of the University. The Task Force affirmed Professor Brown had clearly identified fundamental rights. Copies of Professor Brown's Bill of Rights were sent to the Director of the Physical Plant and Senior Vice Provost for Planning and Resources by the Vice-President for Administration. The Director of the Physical Plant allocated funds to begin the classroom enhancement project immediately. The document was also used as a resource by a planning action committee chaired by Vice Provost Kissler. But this beginning while being acknowledged with appreciation should not be allowed to wither from lack of active follow-up.

The Brown documents also described the point where faculty and students basically interact with the environmental infrastructure, and highlight larger and more expensive maintenance and repair issues.

The Task Force authorized the design and circulation, campus-wide, of a questionnaire, CLASSROOM ENVIRONMENT SURVEY. Respondents were asked to describe two classrooms in which they taught Fall Term, 1990 and their own office space. A total of 298 responses were submitted to the Task Force chair. These documents were analyzed and a summary report prepared (see Appendix B). Recurring themes were room cleanliness (the custodial force has been subject to a series of reductions over the past two decades), failure to systematically replace broken or worn out classroom furniture (desks, chairs, lecterns, teaching desks/tables and blackboards, and inability to control classroom windows, lighting, heating and ventilation).

The Task Force also explored the absence of technological enhancements within the UO classrooms. Those enhancements that were deemed to be important but fundamental, were:

- access to audio-visual facilities/materials delivered through a networking system to the classroom from the IMC; and
- telecommunications linkups in the classrooms for instruction, demonstration, etc.

A detailed inventory of classroom audio/visual needs has been cataloged and is available as Appendix C to this report.

Classroom environment and technological needs were augmented by anecdotal discussion within the Task Force as well as by presentations to the Task Force by James Mahoney, Director of the IMC, Muriel K. Jackson, Assistant Vice-President for Administration, Dan Williams, Vice-President for Administration, George Hecht, Director of the Physical Plant, and David Rowe, University Planner. This latter group of administrators presented their assessments of physical plant conditions, suggested solutions and explained the financial implications.

The Task Force found no bright spots in terms of solutions. All of the administrators involved in these exchanges were cooperative and provided the data and analysis necessary to fulfill their advocacy roles.

Several had documentation to share with the Task Force during their visits. That documentation is attached in the Physical Environment appendix. The documentation and data ranged from general standards employed by the Physical Plant to demonstrate the cost of maintenance and upkeep for various levels of square footage (based upon national and OSSHE

standards) to the compiled findings on the capacity of the UO classroom to support various levels of audio-visual service (non-existent at present).

The Task Force was advised that in a presentation at the November 16, 1990, OSSHE Board meeting, University representatives estimated the total needed for repairs, modernization, and adaptation of the current physical facilities of the University at $100,000,000. This figure was reached through application to this campus of the figures and formulas prepared by the OSSHE consultant who evaluated the OSU campus infrastructure needs *(see* Appendix D).

Based on University of Oregon data which focuses on capital repair and deferred maintenance, the necessary updates, repairs and in some cases complete replacement of campus-wide systems and utilities such as the utility tunnel system, steam and chilled water system, electrical system, plumbing backflow installations, street and sidewalk improvements, exterior lighting improvements and fire and security alarm system upgrades would cost in excess of $18,500,000. Deferred maintenance on campus buildings totals in excess of $35,000,000. Deferred maintenance applies to roofs, exterior walls, floors, ceilings, interior walls, alarm systems, building air conditioning. While accessibility for the disabled has improved greatly at the University of Oregon over the past decade, a number of significant problem areas remain. Under legislative mandate, the University identified and prioritized basic building access, assigning first priority to classroom buildings. Johnson Hall remains completely inaccessibly to the mobility impaired, as are the upper floors of Collier, Condon School, Education, Esslinger, Fenton, Friendly, Susan Campbell and Volcanology. Although the unlisted buildings are basically accessible, innumerable barriers remain in individual classrooms, laboratories, offices and rest MOMS.

During the past decade the University has made great strides in the area of specialized equipment for the disabled. Unfortunately, demand far outstrips availability.

Further, no systematic provisions have been made for fire safety for the mobility impaired. Many physical facilities continue to present significant hazards to the visually impaired. Few fire alarm systems provide warnings for the deaf. A growing population of quadriplegics is unable to enter many campus buildings without assistance due to the lack of electrically operated doors.

The University has submitted for the three biennia beginning 1991-93 phased approaches to solving these problems: $63,410,00 is needed for 1991-93; $43,050,000 for 1993-95; and $52,070 for 1995-97.

The discouraging truth is that because all of the campuses within OSSHE have similar dire needs, each institution receives only a fragment of the amount truly needed and the band aid approach to best utilize the funds allocated is undertaken each biennium by the Physical Plant

Based upon the presentations and subsequent exchanges from the aforementioned administrators, the Task Force makes the following RECOMMENDATIONS:

Classroom and Office Environments

- The University of Oregon administration should authorize a three to five year $500,000+ program to improve classroom spaces based an audit checklist developed from Professor Brown's Bill of Rights.

- The University Administration should establish a permanent standing Classroom Environment committee made up of officers of instruction, GTFs and a representative number of students. The committee would review progress on the classroom improvement program, recommend additional classroom improvements, request annual classroom space evaluations, conduct surveys of teaching faculty to identify otherwise unidentified problem areas.

- The Vice-President for Administration should be specifically designated as the senior administrator responsible for the continuous maintenance, and physical and technological improvement of classroom spaces to sustain proper standards. The Vice-President should exercise this responsibility through and by the Director of the Physical Plant.

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- Formalize through establishment of a standing committee and designated responsible administrators, a phased plan to address the needs of the disabled on the campus.

Basic Physical Plant Facilities

- For at least the next ten years, the central administration of the University should consciously protect the Physical Plant budget from further reductions. The problem over the past two decades has been that carefully detailed budgets to address capital repair, renovations, rehabilitation have not been fully funded by the Legislature. Further, in making mandated University-wide budget cuts to meet reduced state fund appropriations, the Physical Plant budget has been targeted as the deep pocket to meet a significant portion of campus reductions.

- This Task Force, therefore, recommends that the Physical Plant funding not be used by the central administration to make up future budget deficits. To preserve and restore University facilities, the backlog of deficiencies resulting from deferred maintenance of the past two decades must be addressed. If appropriations in the amount of $10 million the first biennium, $12 million in the second biennium and $14 million in the third biennium were to be fully funded, the building structure needs of the campus could be addressed in six years. By spreading the amounts from *state appropriations* over the

more realistic ten to fifteen years, the Task Force believes restoration of campus facilities can be assured.

- The current 9.8% of the indirect overhead recovery costs allocated to the Physical Plant operations and maintenance should be increased substantially.

Conclusion

Appendix B to this report summarizes the response of 298 members of the faculty arid graduate teaching fellows to a fall 1990 Classroom Environment Survey. The 298 respondents confirm what was already well known to the Task Force: that classrooms at the University of Oregon are, on the whole, in very bad shape. The survey reveals strong emotions of discontent, anguish, and, frequently, cynicism, in regard to the condition of the University's classrooms. That being the case, the Task Force was heartened by its meeting last fall with Physical Plant Director George Hecht who much impressed it with his understanding of our bad classrooms, and, in general, his responsiveness to the urgency of dealing with this issue. In all of this, Director Hecht is strongly supported, the Task Force learned, by the Vice-President for Administration.

Physical Environment Fiscal Summary

Item	One-Time	Notes
Capital Repair	$18,500,000	basic campus systems
Deferred Maintenance	$35,000,000	41 major buildings
Classroom Improvements	$ 1,500,000	over 3-5 year period
Disabled Access	$ 1,000,000+	
Capital Construction	$63,410,000	1991-93
" " "	$43,050,000	1993-95
" " "	$52,070,000	1995-97
TOTAL	$214,530,000	

Chapter IV — Information Access: Library Services

The following discussion represents the Task Force's priority recommendations under the heading of "information access". Information access generally translates as library services. As a major element of academic infrastructure, the University Library has only received funding at levels which allow for the minimum in support for instruction, research, and service, with the major emphasis on acquisitions. Even with that emphasis the Library's capacity to support the needs of the University's scholars has been inadequate. Within that context the infrastructure of the library itself has been funded even less well. Therefore, the Library's capacity to support scholarship with services beyond collections has been severely hampered and, by extension, so has scholarship suffered. What follows is an attempt to provide a detailed statement of needed services and the resources necessary to provide those services. The aspirations of the Task Force are for those Library services to be funded at the average of reasonable comparator libraries of other publicly funded AAU institutions.

L COLLECTIONS

A. Current Status:

The University Library is the largest library in the state, currently holding over 1.8 million volumes and receiving approximately 21,000 serial titles. Replacement cost of the collections is estimated at a minimum of $106 million; Special Collections holdings are, in many cases, irreplaceable at any price. Through interlibrary loans and membership in the Center for Research Libraries, the Library shares its own holdings and provides local access to research collections and materials held by other institutions.

The majority of the Library's holdings consist of general materials purchased in support of instructional programs. To a more limited extent, the Library has been able to develop areas of the collection capable of supporting advanced research. Areas of particular strength include the American West; 20th century American politics, with special emphasis on conservative political movements; English literature and history of the 17th and 19th centuries; Russian literature and history, especially pre-1700; Chinese and Japanese art; modern Chinese literature; Japanese religion; Native American literature; and Australian and Canadian materials.

Acquisitions are supported mainly by appropriated state funds. The Library's collections receive a modest amount of additional support (approximately 4% of the total) from student fees, gifts, grants, and endowment income. The recently-awarded National Endowment for the Humanities Challenge Grant includes an endowment for library acquisitions which will have a significant positive effect on the Library's ability to acquire materials supporting humanities programs of greatest priority to the University. The structure for administering the endowment is designed for maximum responsiveness to evolving academic priorities and new areas of humanities scholarship.

Despite the relative size and regional importance of the collections and the "pockets of strength" mentioned above, the collections as a whole are inadequate to support the University's current instructional and research programs, particularly the latter. Building excellent research library collections requires consistent support over decades, and the "boom or bust" funding pattern of the OSSHE institutions is reflected in the collections of the University

of Oregon Library. The Library was given a high degree of support by the University Administration during the lean years of the early 1980s, but has still not received funding comparable to that of its peers in the ARL In a ranking of public AAU comparators (30) The Univeristy of Oregon Library held the following positions (taken from 1989/90 ARL statistics):

Volumes in Library	29/30
Volumes Added	29/30
Current Serials (total)	26/30
Total materials expenditures	27/30
Total Library expenditures	29/30
Total Staff (Professional, Support, and Student)	28/30

Even at the undergraduate level, the need exists for more general periodicals, more reference tools (both print and online, including CD-ROM indexes), more newspapers, more copies of items on reserve, and much more for non-book materials. Increased collection depth is needed in virtually every area in order to support and stimulate instruction and research at the graduate level, as well as faculty research.

The University Library has not been able to improve its collection quality at the same pace as the University's iivtructional and research programs. In most cases, proposals for program development and enhancement have not included realistic estimates of associated library costs. As a result, the Library has been unable to adequately support new programs as their information needs grow. Annual inflationary increases have not been adequate to support established programs.

Patron access to the collections has been slowed by backlogs in processing. This is due mainly to low staffing levels in the technical services area. Staffing levels of the University of Oregon and other ARL libraries are compared elsewhere in this document.

B. Needs:

Materials budget for the 1989-91 biennium

The University of Oregon Library, like other research libraries, has encountered staggering rates of inflation, combined with a renewed proliferation of published materials, which make the development of a representative and balanced collection increasingly difficult. Lack of sufficient and consistent funding has resulted in collections which are inadequate to support the University's instructional and research programs, particularly the latter.

Maintenance of a representative serials collection is essential to the scholarly communication process, predicated as it is upon rapid and free access to current research and dialogue in all disciplines. Also relevant to the scholarly communication process are the tools which provide access to the ever-expanding journal literature, many of which are now available as powerful CD-ROM systems. Likewise, consistent levels of monograph acquisitions are essential to the University's instructional and research programs.

1989/91 biennial budget

The addition of $528,000 to the materials budget for the 1989/91 biennium has begun to reverse the precipitous decline in monograph purchasing, although it will not restore the purchasing power of the 1985/86 monographs budget. It will permit continued modest purchases of new serial titles and establishment of a budget line for CD-ROM subscriptions. It should be noted, too, that in preserving a stable pattern of acquisition for university press monographs, the

Library will not be able to purchase monographs from other publishers at levels comparable to the mid-80s. Even this augmented budget will not, moreover, permit the Library to address a number of equally pressing collection development issues, including: retrospective purchases; major purchases of research material; purchase of textual and numeric CD-ROM databases; purchase of software and machine-readable data files; and purchase of microform back-sets/subscriptions for newsprint-format serials which cannot effectively be bound. See "Specific Needs" below for more detailed descriptions of these categories and formats.

1990/91 budget

Table II illustrates how the additional funds ($264,000) could be applied in 1990/91, based on projections of an 11% rise in serials renewal expenditures and a 20% rise in university press expenditures. Investment in new serial subscriptions and new CD-ROM databases would continue to be modest. Regrettably, real purchasing power for monographs can be expected to decline.

C. Specific Needs

The following areas of specific need should be viewed as examples of areas in which additional resources are needed:

1. Monographic Acquisitions (current titles): Although book prices are not increasing at the same rate as serials prices, costs for scholarly titles are still increasing faster than the Consumer Price Index and more titles are published each year. Additionally, foreign book prices have been adversely affected by the devalued U.S. dollar. Significant budget increases are necessary if the Library is to maintain an equitable rate of collection growth.

   COSTS: In order to address the expanding rate of publication and inflation, allocations for new monographs would require annual increases of at least 15%, probably more.

2. Serials Titles: In recent years, the prices of many scholarly journals — particularly those in scientific and technical fields -- have increased at rates far above the Consumer Price Index. The problem is especially acute in regard to foreign publications, where increases have been even higher due to a weak dollar and differential pricing practices by British and European publishers. This is a crisis situation of national and international concern and is being addressed by the library and scholarly community as a whole. In the meantime, the Library and University must make every effort to maintain access to serial publications with the least possible disruption of monographic purchasing.

   New serial titles continue to appear as disciplines grow and change. In order to stay current and competitive, faculty and students require access to at least the major new titles in their disciplines. With the average annual price of a university library serial subscription having increased 30.5% (U.S. titles) and 69.3% (foreign titles) between 1985-88, even a modest increase in the number of subscriptions requires substantial commitment of funds on a recurring basis.

   COSTS: Annual increases of at least 15% are needed to maintain current subscriptions and provide a modest program for adding new subscriptions.

3. Library discretionary accounts: During the past several years, Library discretionary allocations have been virtually eliminated in order to maintain faculty buying power through departmental allocations. This has been necessary in order to meet short-term needs for materials supporting current instructional and research activities. These allocations should be restored as soon as possible in order to allow acquisition of general

reference and interdisciplinary materials which augment the entire collection and benefit the institution as a whole.

COST: $100,000 per year minimum, with 15% increases.

4. Support for new and expanded programs: In the past, the Library has had insufficient opportunity to participate in development of proposals for program enhancements, Program Improvement Requests, proposals for new institutes, Centers of Excellence, etc. Such efforts require assurance of adequate, recurring library support. Without necessary library and information resources, students and faculty become frustrated, funding agencies question institutional commitment, and program success is jeopardized. The following points should be considered in any discussion of a new or expanded program:

a. New Faculty Positions: Faculty members in specializations which are new to the University of Oregon have immediate needs for library materials. With the assistance of relevant Library subject specialists, new faculty members should be given the opportunity to select library materials necessary for their instruction and research. In order to preserve library support for current faculty via regular departmental allocations, recurring funds should be provided by the University Administration to subsidize "special' acquisitions for new faculty. Ideally, such funds would be available for new faculty appointed to both newly-established and replacement positions. While it may be possible to acquire some basic "start-up" monographs with non-recurring funds, necessary new serials titles and current publications must be supported on a recurring basis.

A related concern is support for new areas of research and teaching by existing faculty members, including new interdisciplinary programs or study groups. As an example, the University has recently shown an increasing commitment to area studies (Southeast Asia, Canada, Australia, etc.); in most cases, no recurring acquisition funding has been provided when special study groups or official committees are formed.

Library support required for new programs should be determined in the early stages of program development. When possible, this should include the objective assessment of current collections by University of Oregon librarians and teaching faculty and, in some cases, by experts from outside the University.

COST: $5,000 per new faculty FTE, non-recurring. In 1987-88, for example, the University established 13.5 FTE in new faculty positions; a $5,000 non-recurring allocation per FTE would have generated a total of $67,500 for library materials. Ideally, a similar level of funding would also be made available for replacement appointees as well as for new positions. For new programs, an appropriate level of recurring acquisition support for new monographs and journal subscriptions should be determined by consultation with the University Librarian prior to program approval at the University level.

b. Institutes and Centers: In order to encourage research productivity and attract and retain dynamic faculty, the Library should be collecting comprehensively in support of research institutes and centers. The interdisciplinary nature of these endeavors requires that full support be available not only for specific disciplines, but for related general reference materials as well.

COST: At least 5% of any state appropriations for institutes, research centers, and Centers of Excellence should be earmarked for library support. Furthermore, an established portion of indirect costs from active grants generated by these programs should be isolated and directed to the Library for resource-building in relevant disciplines. The recent establishment of a Library indirect cost credit (ICC) account should make this easier to accomplish as long as the above

guidelines are followed. As mentioned above, early involvement of the Library in developing proposals for new institutes and research centers is essential to adequate program planning.

c. Riverfront Research Park: It is anticipated that the Research Park will generate increased demand for Library services and materials, especially in business and the sciences.

COST: To be determined. At a minimum, the Library should be directly involved, on a case-by-case basis, in determining the level of library and information service support which the University will provide to Riverfront tenants. This will be especially important if the Park includes an "incubator" facility offering free or low-cost space and research support. The Library should be permitted to recover costs incurred in provision of any fee-based information services or projects.

5. Major purchases: Due to the absence of major purchase funds, the Library is currently unable to obtain many important large reference works, microform sets, reprints, A /V items, etc. Such items are not frills or esoterica, but necessities for university-level instruction and research, particularly at the graduate level. Use of A/V resources in undergraduate instruction is increasing rapidly, especially video materials; many of these items fall into the major purchase category of $500 and up. There should also be some provision for purchase of Special Collections items when they appear on the market; this is especially needed now, as changes in the tax laws make donation of rare and unique materials less attractive than in the past.

COST: A total of at least $125,000 per year should be available for major purchases, including Special Collections. This recurring allocation would require the 15% annual increase for monographs.

6. Retrospective purchasing: A number of gaps in the core collection remain from the late 1970s and early 1980s, when Library budgets were unable to support minimal purchase of many major works. In addition, collections supporting recently established programs need to be strengthened with materials published before the Library began supporting those programs (Women's Studies is a good example). Generally, all collections supporting graduate instruction and original research need to be strengthened. A specific fund for retrospective purchasing would allow the Library to obtain out-of-print "major purchase" desiderata, back runs of new serials and missing issues of current serials, and older monographs and A/V items needed for instruction and research.

COST: A modest program of retrospective purchasing would require at least $150,000 per year for an indefinite period. This allocation would require the 15% annual increase for monographs.

7. Electronic formats: the academic community expects and deserves access to information regardless of the format in which it is published. The number of these formats is increasing and the delivery systems are becoming more complex. The electronic formats described below are in current demand in the University of Oregon Library:

a. Online database searching: At least $60,000 per year is required to provide a subsidized online search service. This recurring allocation would require at least a 5% annual increase. For the past several years, a very successful program of this type has been provided to users of Chemical Abstracts Online.

b. CD-ROM subscriptions and stations: During 1988-89 and 1989-90, the Library's CD-ROM program was funded primarily by gifts. Initial subscriptions and hardware have been funded entirely by gifts: Approximately $20,000 was spent for initial subscriptions in 1988-89, with an additional $10,400 for additional

subscriptions in 1989-90. Gift expenditures for hardware and cabling have totalled approximately $65,000. To maintain current CD-ROM subscriptions during 1989-90, $24,000 in appropriated serials funds were used; a estimated total of $35,000 will be needed for renewals during 1990-91. Additional recurring funds are required for both subscriptions and hardware in order to provide access to new CD-ROM products, including textual and numeric databases as well as additional reference tools.

c. Software and Machine-Readable Data Files (MRDFs): The Library should collect and provide bibliographic access to software and MRDF titles. It is increasingly common for research libraries to provide such access to large datafiles such as US Census Data or Institute for Social Research surveys regardless of their storage and retrieval points on campus. Purchase costs are to be determined; at a minimum, an inventory of MRDFs already on campus needs to be performed and the Library given the opportunity to catalog relevant titles. Similar bibliographic access should be provided for microcomputer software.

8. Preservation: In 1985-86, under the auspices of the Association of Research Libraries, the Library participated in a Preservation Planning Program to assess the collection and make recommendations for preservation activities. The study found that approximately 10% of the Library's collections are in "very poor" condition. Costs for a modest ongoing preservation program are listed below, each would require a 5% annual increase:

a. Personnel: The preservation function requires, at a minimum, a professional Conservator/ Preservation Officer and classified staff support at the Clerical Specialist level. Costs are listed under staffing needs elsewhere in this document.

b. At least $50,000 annually for an ongoing program of rebinding, boxing, filming, or replacing titles in poor condition. This amount does not include personnel costs. Samplings conducted during the 1985-86 study indicate that at least 10% of the collection (approximately 170,000 volumes) is in "very poor" condition.

c. $7,500 for annual operating costs of the Beach Memorial Conservation Laboratory (excluding personnel and capital equipment). The Laboratory itself has been built and furnished with gift funds.

d. $2,500 annually for an ongoing program of preservation education for Library and University faculty, staff, and students. Continuing education is of particular importance in the field of conservation and preservation, which has been marked by rapid expansion and technological change during the past several years. Regular support for workshop and conference travel, in-house training programs, and preservation-related publications and signage will significantly enhance the effectiveness of the entire preservation and conservation effort.

The total 1990-91 cost for those collection-related program maintenance and program improvement items for which firm or reasonable projected prices can be determined is $1,097,267 more than currently budgeted, even with the additional $528,000 in tuition revenue factored in. Those familiar with research library programs at other institutions will recognize this as a fairly conservative statement. Full support at the levels described would not begin to move the University of Oregon into the top ranks of the ARL. This degree of support is necessary, however, if the Library is to provide students and faculty with collections more closely approximating those taken for granted at our comparator institutions. The University has already made a major investment in the Library's collections, and further physical or intellectual deterioration of the collections would be a critical loss to the University, the State, and the entire academic community. Maintenance of collection growth and adequate

access to information during the next decade will be crucial to the continuing status of the University of Oregon as a research institution.

II. TECHNOLOGICAL APPLICATIONS WITHIN LIBRARIES

A. Current capabilities:

Over the past two decades, advances in technology have allowed research libraries to automate a variety of functions. Integrated automation of cataloging, acquisition, and circulation services and activities is essential to the success of a modern academic research library. Faculty and students expect to find these systems in place, especially when they have had previous experience using them in other institutions. Therefore, in recruitment and retention of faculty and graduate students, the absence of automated library systems may be considered a detraction even when the presence of such a system would not be a major favorable decision factor. The most important benefit, though, is that automation greatly improves access to library materials and therefore enhances scholarship. Libraries no longer automate for the sake of efficiency for librarians, but do so to improve scholarly processes at the heart of the research university.

The University of Oregon Library has been able to take advantage of computer technology in a number of ways. Since 1975, all new University of Oregon Library cataloging has been recorded in machine-readable form. Through the 1987-88 academic year, this database was been used to produce a computer output microform (COM) catalog, with a major update and several supplements purchased annually. In 1988-89, the COM catalog was replaced by the JANUS online catalog.

In 1983, the Library installed an INNOVACQ (Innovative Interfaces, Inc.) acquisition control system. In 1986, a serials check-in subsystem was added. The INNOVACQ system is used for on-order and in-process control of library materials, including fund accounting. Patron access to the INNOVACQ system is available at public access terminals in a variety of locations. It should be mentioned that purchase of the INNOVACQ system was made possible entirely by gifts from private citizens.

Since 1988-89, the Library has installed the Innovative Interfaces, Inc. INNOPAC online public access catalog (OPAC) and automated circulation system. These components combine with the INNOVACQ acquisition system to form a true integrated library system. Because the local system will form a significant gateway to the informational resources of the Library, we have named it JANUS after the Roman god of doors, gates, and all beginnings.

In addition to author, title, and subject searching, the JANUS online catalog provides:

1. keyword searching
2. combination (Boolean) searching
3. browsing in shelflist order
3. online authority file
4. alternative access points (publisher, date or place of publication, language, format, etc.)

By selecting and combining searching features, users of the JANUS catalog may conduct a variety of searches -- comprehensive or highly refined — with a degree of speed impossible in a card or microfiche system. Integration with the acquisition and circulation systems allows

item availability status to be noted on the screen. Search results can be printed or downloaded to diskettes as a convenience to the patron or for use in developing local bibliographies.

The JANUS automated circulation system uses barcodes and light pens for rapid check-in and check-out of library materials. This has been of obvious benefit to University of Oregon Library patrons, who formerly needed to fill out a circulation card for each item borrowed. The circulation systems is also used to automatically generate recall notices, overdue notices, and billings, tasks which formerly required a large amount of staff time. Statistics and management reports produced by these systems allow detailed evaluation of collection use.

The simultaneous installation of the JANUS integrated system and a Department of Education-sponsored fiber optic local area network (UONet) has facilitated remote access from many (but not all) campus laboratories, classrooms, and faculty offices. The electronic "scholarly workstation" is now a reality for University of Oregon faculty and students in a variety of disciplines, who are able to access and download bibliographic information from the JANUS system for use in conjunction with campus mainframe and micro-based applications. This combination of technologies is matched by very few research universities at the present time. For buildings not yet served by UONet, as well as off-campus users, dial-up (modem) access is available.

No other library in the Oregon State System of Higher Education has been able to achieve this level of library automation. System purchase and maintenance costs (for the catalog and circulation components) will total approximately $975,000 over a five year period. This does not include local implementation costs such as cabling and furniture.

In May, 1991, the Library replaced the CPUs of the 1987 system and further upgraded the system to add ports for forty-nine additional simultaneous users. In addition, storage capacity was increased to accommodate 550,000 additional bibliographic records, 200,000 additional name and subject authority records, and 600,000 additional item records. Preparations are underway for loading of the IAC Expanded Academic Index, which indexes 960 journals in a wide range of disciplines. Hardware, software, and four years of maintenance for this upgrade package will cost $863,000.

No new funding has been appropriated or allocated for the JANUS system. Because the need for other catalog formats has virtually ceased with JANUS implementation, the majority of the cost has been met by funds previously budgeted for card catalog maintenance and the computer output microform (COM) catalog. Additional JANUS implementation costs to date (furniture, peripheral equipment, etc.) have been met with private donations.

The University of Oregon has been a member of OCLC (Online Computer Library Center) since 1981. Through OCLC, the Library has access to catalog and holdings information of over 8,500 other institutions. In addition to cataloging, the University of Oregon uses the OCLC database for a variety of collection development and acquisition functions and for interlibrary loan. Public access terminals are available to faculty and students, providing rapid access to information about the holdings of OCLC member libraries for interlibrary loan and reciprocal borrowing programs.

The Library staff makes extensive use of microcomputers for word processing, spreadsheet, local database maintenance and control, and data communications applications. A combination of MS-DOS and Apple hardware is currently supported, with a gradual transition to MS-DOS underway. During Fall, 1987, two Macintosh microcomputers for student use were installed in the Knight Library. This equipment is a gift of Apple Computer, Inc.

B. Additional Needs:

1. Retrospective Conversion

A major automation need for which additional funds will be required is the retrospective conversion of the remaining 460,000 card catalog records for inclusion in the online system. At present, very few pre-1976 records **are included in** the online database, and patrons are required to search the card catalog for access to these titles.

Full retrospective conversion, including Dewey reclassification of approximately 200,000 titles, will dramatically improve access to library materials, enhancing scholarship and information services at the University and statewide. On campus, this will allow students, faculty, and researchers to conduct searches of the entire database from one terminal without the need for duplicative card catalog searches to identify pre-1976 materials. Beyond the campus, full conversion will allow any library or private citizen with a personal computer and modem to search the JANUS database to determine the availability of library resources at the University of Oregon -- without travel to Eugene to search the card catalog. This would allow an unprecedented opportunity for resource sharing by the OSSHE institutions and by libraries throughout Oregon.

The Library's 460,000 monographic records would be most effectively converted by OCLC. Conversion costs are estimated at $1,100,000.

2. Additional IANUS system enhancements.

These improvements will benefit scholars by providing increased levels of access to library materials held at the UO and elsewhere:

a) JANUS system capacity. Progress toward complete retrospective conversion will enlarge the system's database, necessitating purchase of additional storage capacity from the system vendor and eventual upgrade of the systems hardware platform. $45,000 - 200,000

c) Additional terminals and ports for the JANUS system. The popularity of the system with the Library's community of users is already placing pressure on public access terminals. Conversion of almost 500,000 records to machine-readable form and inclusion in the JANUS database will significantly increase University pressure on the OPAC. Specific levels cannot be determined precisely, but at least 50 more terminals should be added over the next biennium. $125,000

d) Local and OSSHE-wide interconnectivity. Additional dial-up ports are needed to maximize the off-site (and off-campus) use of the JANUS system. $25,000 (10 at $2,500 each)

e) Other system enhancements (examples only; not a comprehensive list). The concept of the "supercatalog" is close to becoming a reality at the University of Oregon. The UO version of the supercatalog should include all records for all holdings included in JANUS. The Library has already decided that it needs to add:

(1) MARCIVE records in order to enhance access to UO-held government documents.

(2) Bibliographic records for the Center for Research Libraries (CRL) catalog database, in order to provide online access to the CRL's holdings.

(3) Online access to databases containing periodical indexes such as ERIC, ABlnform, PAIS, Social Science Abstracts, etc. Many of these indexes are currently available in the Library in CD-ROM format, but are only available to one patron

per database at any given time. When these databases are available online through JANUS, they will be accessible to a virtually unlimited number of patrons via network access. Other databases should be identified for inclusion, but the current suggested list will require $100,000 in additional system hardware and maintenance and $175,000 in recurring subscription fees.

3. Document Delivery

Systems such as JANUS allow the scholar bibliographic access to the Library's collections from within the Library or from remote or decentralized locations. The manual delivery of hard copy Library materials ought to be a goal of the University. TT should be possible to place "orders" for Library materials which are then delivered within a matter of 24 hours to campus locations. Telefacsimile delivery within the limits of copyright law ought to be encouraged also. These relatively mundane services should accommodate most existing and future needs of scholars to access hardcopy collections, improving access to the large body of currently available library material.

Beyond this the Library ought to develop the capacity for scholars at central library sites or through decentralized networked locations to have access to material in electronic form whether held in the UO Library or elsewhere. Several potential sources include:

1. Electronically formatted publications (monographs or journals) which might reside in the UO Library machine-readable database, elsewhere on campus, or available via telecommunications from vendor systems.
2. Machine Readable Data Files (MRDFs), located through bibliographic records in JANUS, but residing elsewhere on campus and available through networked access.
3. Online library catalogs of other universities.

While UONet is not within the purview of the Library, patrons and library services are affected severely because the campus is only partially "wired". Until this has been achieved, none of the above systems can be provided to the entire breadth of the UO scholarly community. The University of Oregon must provide and maintain a modern telecommunications network to the entire university community at no charge to users.

III. STAFFING:

A. Current Status:

By any standard, the University of Oregon Library is seriously understaffed. During 1987, Library staffing levels were the subject of strong criticism by NASC Accreditation team and by the GPO Depository Review team, as were Law Library staffing levels by the ABA Accreditation team in 1986. Public services departments are heavily dependent on student employees, many of whom are subsidized by the College Work Study program. The July 1, 1987 addition of 3.5 FTE classified staff in the Catalog Department has provided some relief in Technical Services, but major deficiencies still exist in all areas of the Library which will need to be addressed in a systematic manner over the next several biennial cycles.

It may be useful to compare University of Oregon Library staffing levels with those suggested by the ARL median and with those recommended by the OSSHE Budget Allocation System (BAS) funding model. The percentages (n%) indicate staffing ratios.

	ARL median (%)	PUBLIC AAUs (2) median (%)	UNIVERSITY BAS (%)	OF OREGON Current (%)
Professional FTE:	70 (24%)	98 (n/a)	60 (30%)	51 **(24%)**
Classified FTE:	140 (51%)	185 (n/a)	120 (60%)	**91.5** (42%)
Student FTE:	62 (22%)	90 (n/a)	20 (10%)	**74** (34%)
Total Staff	272 (n/a)	390 (n/a)	200 (100%)	**216.5** (100%)

It should be noted that the BAS model "entitlement" does not provide any additional resources for the substantial branch operations of the University of Oregon Library. The BAS model was created by an OSSHE staff that had greater understanding and experience with regional colleges than with major research universities. Standards derived from library programs in other ARL institutions are more relevant to the University of Oregon.

Several important conclusions may be drawn from these comparisons:

1. The University of Oregon Library employs unusually high levels of student employees, many of whom should be replaced by permanent staff positions.
2. The Library has a very serious shortage of permanent nonprofessional staff positions, which is not entirely compensated by the high number of student employees.
3. The Library has a serious shortage of professional positions. It should be noted that the 51 FTE figure assumes full staffing. This Library has recently experienced very high professional turnover -- 26 positions (51%) between July 1987 and December 1990. Vacancies have effectively reduced the Library's professional staff by approximately 7.4 FTE (14.5%) when averaged over this same period.

B. Needs:

The following increases are suggested to bring the University of Oregon Library to a staffing level which will allow full delivery of services required by current University of Oregon programs:

1. Professional staff: 13 additional positions. Specific needs identified by the Library, not in priority order, are listed below:

1 Assistant Manuscript Curator
1 Business Reference Librarian
2 Catalog Librarians
1 Documents Librarian
2 General Reference Librarians
1 Humanities Reference Librarian
1 Preservation Librarian ($30,000 annual rate)
2 Science Reference Librarians
1 Special Collections Reference Librarian
1 Instructional Media Specialist

Estimated cost:

12 entry-level positions at $22,500 salary + $8,020 OPE for each position. Subtotal: $366,240

1 Preservation Librarian (department head) at $37,500 salary + $13,370 OPE. Subtotal: $50,870
Academic positions: total need $417,110

2. Classified staff: The Library's shortage of classified staff positions represents a crisis situation, with at least 34 additional positions required to reach an acceptable level of operational support. Specific needs, not in priority order, are listed below:

2 A&AA Library (1 slides; 1 desk)
2.5 Acquisition Department
0.5 Administrative Services
1 Archives
1 Automated Systems
0.5 Budget, Personnel, and Planning
3.5 Catalog Department
3 Circulation Department
3 Documents and Public Affairs Department
2 Instructional Media Center
2 Interlibrary Loan
1 Law Library
1 Map Library
1 Mathematics Library
1 Public Services Office
1 Reference Department
2 Science Library
3 Special Collections
1 Technical Services Office
33.51- lE TOTAL

Estimated cost (using, as an average, a Library Technician 2, step 2, April 1991 compensation plan): $15,624 salary + $7,138 OPE © 45.69% $22,762 for each position. Total cost: $762,527

3. Student staff: A full complement of classified staff positions would permit reduction of the student workforce by as much as 35 Estimated savings per FTE, assuming an average student wage of $5.50/hr: $11,440 salary + $823 OPE = $12,263. Total savings: $429,205 in combined local and Federal funds. The remaining student workforce (39 FTE) would require $446,160 in wages and $32,079 OPE.

In 1989-90, the College Work Study (CWS) program paid $174,309 of the Library's total student wage, or 29% of the total payroll of $593,286 (all accounts). The Library's budgets covered the balance of $418,977. If this ratio is maintained, eliminating 35 FTE of student positions would result in as little as $109,551 actual savings (the difference between the current non-federal student wage cost and the projected $316,774 local cost of a reduced student workforce).

It will be increasingly difficult to maintain the current level of Federal student wage support. During the 1989-91 biennium, the University's cost-share ratio of work study wages increased from 20% to 25% (1989-90) and 30% (1990-91). Each 5% increment will require an additional $16,000 per year in the 50-050-6501 budget alone -- $48,000 for the 1989-91 biennium. These projections indicate that substantial increases to the Library's student wage budget will be required if the Library is to maintain student-dependent operations at their present level.

The Library's incrementally-adjusted beginning student wage budget assumes over 90% CWS coverage for the entire fiscal year. Subsidies at this level have not been achieved for years, and the budget typically requirjs major ($100,000+) upward adjustment. These deficits may be largely attributed to the unavailability of CWS-funded students during Summer Session. Other contributing factors are smaller CWS awards, conversion of CWS awards to grants during the academic year, and an improving off-campus job market.

STAFF NEEDS: SUMMARY OF ADDITIONAL COSTS (salary and OPE):

Professional staff	$417,124
Classified staff	+ $762,527
Student staff (net savings)-	($109,551)
TOTAL NEEDED	$1,070,120

IV. FACILITIES

A. Current Status:

The flagship Knight Library facility is comprised of the original 1937 WPA-constructed building, a 1950 addition, and a 1966 addition. Collection growth during the past 20 years has pushed the building to capacity, and patron seating has been reduced even during periods of increasing enrollment in order to accommodate additional library materials. As an example, 55 Knight Library reader stations and 60 graduate study carrels were permanently displaced by the installation of 566 sections of new shelving during Summer, 1987. The building has recurring problems with heating and ventilation, and there is virtually no carpeting or other acoustical noise control treatment. It is a thoroughly uninviting facility and discourages use.

The Science Library gained approximately 5,000 square feet of space as a result of the Science III construction begun in 1987. The Architecture and Allied Arts Library facility benefited by an increase of 6,800 square feet of new space due to the renovation of Lawrence Hall. The Law Library is the next site targeted for expansion, and a capital construction request for a 25,000 sq ft project has been forwarded to the University Administration. The Map Library, one of the ten largest collections in the U.S., is currently housed in extremely limited quarters in Condon Hall. A 1987 remodelling relieved some of the pressure but is by no means a permanent solution. The Mathematics Library and University Archives are housed in Fenton Hall; both collections suffer from serious overcrowding.

B. Needs:

Knight Library:

Expansion and renovation of the Knight Library building is the Oregon State System of Higher Education's highest priority for capital construction. In his proposed budget for the 1989-91 biennium, Governor Goldschmidt describes the project as "the centerpiece of the Capital Construction recommendation", citing the facility's "critical role on the campus and in the community." During the 1987-89 biennium, $780,000 was appropriated for planning the expansion. The 1989 Legislature has appropriated $17 million in general funds for construction funding during the 1989-91 biennium. This will be matched by an additional $9.345 million solicited by the Campaign for Oregon, with $275,000 to be obtained from other University of Oregon sources. The total project cost, $27.4 million, includes the $780,000 design funding appropriated by the 1987 legislature.

The University has contracted with the team of TBG Architects (Eugene) and Shepley Bulfinch Richardson Abbott (Boston) to design the expansion and renovation. Design development has been completed and approved by the State Board and construction documents have been prepared for an addition of 132,000 square feet and thorough renovation of the existing 237,000 sq ft facility. Ground was broken in April 1991, and the project will be completed in 1994. Please see A Library for the 21st Century: Report of the Committee on Library Expansion for further details.

The importance of this project to the academic mission of the University cannot be overstated, and support for full project funding should remain a high institutional priority. With State funding in hand, obtaining matching funds through the Campaign for Oregon becomes even more critical.

Other Library facilities:

During 1991-92, Library staff will prepare a comprehensive review of current and future building requirements for the entire University Library system. This review may result in further revision of outstanding capital requests and, as necessary, proposals for new capital construction projects.

V. EQUIPMENT AND SUPPLIES

A. Current status:

In order for a research library to keep its doors open to the public and process a large volume of materials in diverse formats, staff must be supported with the equipment and supplies necessary to conduct these operations. The University of Oregon Library, already handicapped by low staffing levels and a deficient physical facility, is also burdened by insufficient funds for basic supplies, services, and equipment.

Approximately $65,000 in regular equipment funds were made available during 1986-87; these funds were used primarily for special storage units (map cases, slide cases, plan files, etc.), basic furnishings (desks, chairs, cabinets, etc.), processing equipment (drill rivet system), and microcomputers and electric typewriters. An additional $75,000 was provided for desperately needed shelving and $10,000 for basic A /V equipment. No equipment funds were made available for 1987-88. In 1988-89, $75,000 was budgeted for equipment and used primarily for basic library and office equipment in support of current operations. Nearly all equipment to support JANUS and CD-ROM implementation has been purchased with gift funds. Consumable supplies are also inadequately supported.

Staff efficiency is hampered by limited access to basic equipment such as electric typewriters and microcomputers. As an example, some professional librarians are still using older style manual typewriters to prepare original records for the JANUS online catalog and the OCLC database. Until the University Administration funded purchase of a new Dodge van in 1987-88, the Library and IMC's delivery service vehicles consisted of a 1962 VW van and a 1973 Ford van. Both were subject to such frequent mechanical breakdowns that the University's automobile service shop eventually refused to work on them and employees refused to drive them.

B. Needs:

The Library experiences chronic shortfalls in its supplies and services budget. During the respective 1985-86, 1986-87, and 1987-88 fiscal years, the Library's supplies and services budgets required augmentation of $61,552, $68,147, and $128,953 to maintain very basic operations. A total augmentation of approximately $210,000 was required during 1988-89; of this amount, however, over $33,000 were non-recurring costs related to installation of the JANUS system. The explanation is simple — the University of Oregon Library is responsible for maintaining the 67th largest collection in the ARL with an "other operating expenses" budget ranked 89th (1986-87). Expenditure of gift funds and payments for the JANUS system moved this ranking up to 71st for 1987-88; it must be kept in mind that these are not regularly budgeted S&S or equipment funds. Operation of an extensive branch library system compounds the problem, as basic supplies and equipment must be provided at each site whether or not they are also present in the Knight Library.

Comparison with other ARL libraries is useful in determining a reasonable expectation for support in these areas. For account 50-050-6501, the beginning S&S and equipment budgets for 1988-89 totalled $253,871. Using collection size as a determinant (.87 of ARL median) and making the maximum corrections for vagaries in reporting, the University of Oregon Library should be spending $619,661 per year on supplies, services, and equipment. This represents a recurring shortfall of $365,790 -- 59% of the total need.

VI. PUBLIC SERVICES; RESOURCE SERVICES

A. Current status:

As mentioned above, the public service departments in both the Knight and branch libraries are seriously understaffed. Basic functions are heavily dependent on student employees, especially those subsidized by the College Work Study program. Given the resources available, the Library has provided a remarkable level of service.

1. Reference: Reference librarians in Knight Library departments and in branch libraries are responsible not only for desk service (up to 30 hours per week in some cases), but for collection development, library instruction, and online searching. Staffing levels preclude the availability of professional reference service during many hours in which the Library is open. The need exists for increased access to professional librarians for in-depth reference assistance, especially in branch libraries other than Law, which received an additional professional position in 1987-88. The Documents and Public Affairs Service, Science Library, Map Library, Architecture and Allied Arts Library, Reference Department, and Special Collections all require additional professional staff.
2. Circulation, including stacks maintenance: Circulation staff in all locations have experienced increased workloads as a result of enrollment increases and generally heavier use of the collections. Turnover of classified staff in these areas is high. Currently, staffing is provided largely by part-time College Work Study-subsidized student employees, with a resultant loss in efficiency and consistency.

B. Needs:

1. Reference Service; Resource Services: In response to comparative understaffing, increased enrollments, and increasing demand for professional library services, the Library has

identified the need for at least 10 additional reference librarians (see "Staffing", above). In addition to "traditional" reference desk and collection development assignments, reference librarians are largely responsible for the following activities which are targeted for significant expansion: 4

a. Library Instruction: It has been suggested that the educated citizen in the "information age" must have at least basic skills in identifying, locating, and evaluating information resources in any format. The Library Instruction Program provides opportunities for students to gain these skills through general and discipline-specific credit courses, in-class lectures, library tours, and publications. Demand is likely to increase dramatically as a result of revised general education requirements.

b. Online searching: Database searching is an increasingly important Library service. University of Oregon students and researchers expect to have access to all available databases. All library users should have exposure and access to the power and applications of online searching. Another Library goal is expanded outreach to the Oregon business community for fee-based library services, with expert online searching as a vital program component.

Funding needs: As mentioned above under section III, Collections, an estimated $60,000 is needed for subsidized searching, including telecommunications charges, with at least a 5% annual increase to cover inflation and rising demand.

2. Circulation Service: In addition to improved working conditions and completion of the automated circulation system, a major need of public service circulation units is for consistent staffing not dependent on College Work Study subsidies. As mentioned above under I. (Staffing), the University of Oregon Library needs at least 34 more classified positions to achieve the levels of support currently available to users of comparable ARL libraries. A number of those new positions would be assigned to circulation units with subsequent reduction (although not elimination) of student PTE. The argument for replacing student employees with permanent staff becomes stronger as College Work Study students become more expensive (see "Staffing", above, for further information).

VII. TECHNICAL SERVICES

A. Current Status

The Technical Services Division is responsible for the order, receipt, cataloging, and processing of materials to be added to the Library's collections. It is currently comprised of the Acquisition, Catalog, and Serials Departments and the Library Systems Office. The Assistant University Librarian for Technical Services also has general responsibility for preservation of library materials.

The Acquisition Department is divided into two sections, Orders and Search/Receive. Current staffing consists of 1 librarian and 6 civil service employees. The Department places more than 35,000 firm orders each year and processes gifts of library materials.

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4 In recognition of the library-wide role of online searching and library instruction, these services were combined with Collection Development in Spring 1989 to form a new library division (Collection Development and Resource Services). It is anticipated that this reorganization will encourage highly-focused planning and administrative attention during a period of very rapid growth in these services.

The Catalog Department is by far the largest unit in the Library, with 11 faculty catalogers, 21 classified and Management Service employees, and a number of students. There are currently 4 sections: Authorites, Cataloging Teams, Database Maintenance, and Processing. The Department is responsible for providing bibliographic control of the Library's holdings, development and maintenance of the JANUS database, and physical processing of materials in preparation for use by patrons.

The Serials Department was established in its present form in February, 1988. It is comprised of the Serials Records Section, formerly in the Acquisition Department, and Serials Cataloging, formerly in the Catalog Department. The goal of the reorganization is to streamline and expedite workflows and provide a single point of contact for questions regarding status of serials items as they move through Technical Services. The department is currently staffed by 2 professional librarians and 7 classified employees.

The Library Systems Office is staffed by one professional librarian and one Civil Service employee. In addition to providing day-to-day support of the JANUS system, the Systems staff is responsible for general coordination of staff microcomputer installations.

B. Needs

1. Staffing: In 1983 the need was identified for at least 12 new classified positions in the traditional technical services areas: 7 in the Catalog Department, 2 in the Acquisition Dept., and 3 in Automated Systems. This situation was somewhat alleviated by the addition of 3.5 FTE positions to the Catalog Department staff on July 1, 1987. If the Library is to give significant attention to the issues associated with the preservation of library materials (dealing with brittle books and journals, developing disaster plans to cope with incidents like the 1987 flood in the Science Library, education of staff and patrons to ensure proper handling of library materials, microfilming programs to preserve fragile items, etc.) a new faculty position is needed to serve as Head of a Preservation and Binding Department. That department head will be responsible for management of binding and repair activities currently performed within the Catalog Department as well as Library-wide coordination of preservation activities and education programs. Additional positions are needed in other departments with technical processing responsibilities—Documents and Public Affairs, Special Collections, and Archives, for example.

2. Equipment and facilities: As described above in Section V., equipment and facilities in the technical services areas are inadequate. While some progress has been made, there is still a need to provide ergonomically-designed furniture and improved lighting for employees in these highly automated environments. Current equipment is badly worn, much of it having been used for more than 20 years. Staff rely on computers more and more for all routine procedures but the design of their workstations has not evolved at the same pace. All technical services staff (except those performing physical processing tasks such as labelling or mending) need terminals at their desks from which to work. The Acquisition and Serials Departments are also very short of workstations and currently use flexible scheduling in order to maintain output. Even so, supervisors and faculty librarians often have difficulty finding open terminals for quality control and database maintenance projects.

3. Automation: Technical services operations will continue to require more and different equipment as the computing environment within the Library and on campus changes. Installing JANUS, the Library's integrated library system, is just the beginning. Areas in which staff will grow in sophistication and in need for additional technical support include heavy demand for telecommunications equipment; "intelligent" workstations that will permit access to a variety of databases, not just the online catalog; local

networking to enhance ability of technical services staff to respond to the information needs of other library staff and library users.

VIII. INSTRUCTIONAL MEDIA CENTER

A. Current Status:

The Instructional Media Center, a major instructional support unit of the Library, offers a wide array of audiovisual resources in support of the University's instruction, research, and public service missions. Current services include maintenance, delivery, and operation of A/V equipment; a film and videotape collection with approximately 2,000 titles; studio space for professional presentation of media services; drop-in listening and viewing facilities; an audio production studio; an instructional television production studio; A/V equipment repair and technical shop; and a full graphic arts service.

The IMC continues to experience increased usage of most media resources. Faculty demand for traditional equipment (e.g., overhead and slide projectors) exceeds supply. Playback facilities for videotapes in IMC studios and in classrooms are seriously inadequate for current needs; as instructional use of video technology increases, the deficiency will become even more pronounced. The recent upgrade of Room 138 Gilbert Hall, with installation of video projection and PC Viewer, will need to be replicated in many other spaces in order to accommodate this growth. Installation of a satellite dish in 1987 has allowed the University of Oregon to begin participating in national student teleconferences and to pick up broadcasts from a number of foreign countries; the connection of the IMC's video studio to strategic campus classrooms would allow these broadcasts to be disseminated more broadly.

B. Needs:

As in the remainder of the Library, inadequate staffing, facilities, collections, and equipment prevent the IMC from fully meeting the needs of its patrons. One of the most pressing problems is for additional studio space; the Center cannot meet current demand for studio reservations. There is an urgent need for acoustical treatment of walls and doors between studios A, B, and C; significant sound leakage occurs between these spaces and is a constant source of legitimate faculty complaint. The solution to these problems will be found in an expanded Knight Library facility. At least $1.44 million in new equipment is required to meet current demand for classroom A/V services in the IMC and elsewhere on campus, as well as additions and upgrades for the ITV and Graphic Arts services. The advent of the videocassette has made collection of films and documentary series much more feasible, and these collections should be substantially expanded in support of current University of Oregon academic programs (please refer to Section III., "Collections", for further details).

SUMMARY

GRAND TOTAL COSTS (new funds): $6,698,683

The inadequacies reflected throughout this document create ongoing frustrations for students, faculty, and Library staff. Inevitably, this frustration results in periodic faculty conflict with Library administration. These frustrations would be significantly reduced by more realistic assessments of increased library and information needs resulting from new or enhanced

programs, centers, and institutes. The benefits of collaboration with the Library from the earliest stages of program development will accrue not only to those initiating the program proposal, but to all present and future users of the Library.

The Library has been able to provide at least basic library services to the University community. Students in a research university need more than the basics, however, if they are to gain the most from their academic programs and graduate as information-literate, self-directed citizens. Faculty need more than the basics in order to conduct ongoing original research without routine travel to other institutions. Oregon businesses and governmental agencies need more than the basics from the largest academic library in the region.

The faculty and staff of the University of Oregon Library look forward to continued growth of the collections, improved facilities, and improved levels of staffing and automation to better meet the legitimate information needs of those whom the Library serves. Major problems such as library automation have been solved with creativity, energy, and a willingness to take risks.

Information Access Cost Highlights

General Library (based on FY90-91 levels)

	RECURRING	INFLATION
COLLECTIONS		
monographs (current budget)	$1,009,832	$111,082 (11% added to current 4%)
serials/standing orders inc. new serials	$1,960,774	$215,685 (11% added to current 4%)
Lib discretionary	$ 100,000	$ 15,000 (15%)
New program support	to be determined on ad-hoc basis	
Major purchases	$ 125,000	$ 18,750 (15%)
Retrospec. purchases	$ 150,000	$ 22,500 (15%)
Electronic formats	$ 235,000	$ 35,250 (15%)
consists of subsidized dbase searching ($60,000) and subscription fees for locally mounted dbases ($175,000).		
Preservation non-personnel	$ 60,000	$ 9,000 (15%)
TOTAL COLLECTIONS (Program Improvement)	$ 670,000	$427,267

TOTAL PROGRAM IMPROVEMENT COLLECTIONS + INFLATION: $1,097,267

TECHNOLOGICAL APPLICATIONS

	RECURRING	ONE-TIME
Retrospective Conversion		$1,100,000
Add'l Janus enhancements	$120,324	$ 494,850
90-91 Upgrade	maintenance	hardware/software
Document Delivery	costs to be determined	

STAFFING

	SALARY	OPE	TOTAL
Faculty add'l 13 FTE	$307,500	$109,624	$417,124

Classified add'I 33.5 FTE	$523,404	$239,143	$762,547
Students 35 fewer **FTE***	($102,203)	($ 7,348)	($109,551)
STAFFING TOTAL	$728,701	$341,419	$1,070,120
*STUDENT PAYROLL BREAKDOWN			
Current (74 FTE during Academic term):			
Total Payroll	$593,286	$ 42,657	$635,943
CWS Cost	$174,309	$ 12,533	$186,842
Local Cost	$418,977	$ 30,124	$449,101
Minus 35 FTE (39 FTE during Academic term):			
Total Payroll	$446,160	$ 32,079	$478,239
CWS Cost	$129,386	$ 9,303	$138,689
Local Cost	$316,774	$ 22,776	$339,550
Net Savings (Local Costs Only):	$102,203	$ 7,348	$109,551

SUPPLIES AND SERVICES & EQUIPMENT

	Recurring	**One-Time**
Additional Need gent S&S; equipment	$365,670	
IMC equipment: classrooms & IMC (Studios & ITV)		$1,446,597 (on 10-yr. replacement cycle)

SUMMARY

	Recurring	One-Time	Inflation
Collections	$1,360,193		$1,066,030
Technology		$1,100,000	
Staffing	$1,360,193		
S&S/Equipment	$ 365,670	$1,446,597	
TOTALS	$3,086,057	$2.546.597	$1,066.030
GRAND TOTAL:	**$6,698,683**		

CHAPTER V - Information Technology: Computing and Network Services

A. Information Technology (IT) Trends

The Task Force examined a number of documents on IT trends. For planning in the 1990s, typical trends may include the following:

a. Computing will get faster, cheaper, and smaller.

b. Broadband, digital, switched networks may be accessible almost anywhere in the industrialized world, based on fiber optics and high speed switching nodes.

c. Central processing unit (CPU) power may truly be distributed due to telecom-driven architectural shifts:mainframes will still be with us though the lines of distinction between micro-, mini-, and mainframe will be drawn by application, not hardware.

d. Most printing devices may be capable of typesetting and full graphics, and therefore will be able to interpret uniform page description languages.

e. Imaging technology will get much cheaper, much smaller, and improve vastly in quality.

f. High-resolution video will merge with computer displays.

Source: "Paradigms Revised: The Annual Review of Communications and Society." (1989), Richard J. Solomon.

Organizational environments for IT are changing too. Quinn Mills and G. Bruce Friesen of the Harvard Business School have written about two organizational trends: a) a move to flattened organizations with less hierarchy and more informal work groups; and b) more lateral connections linking across previously impermeable organizational boundaries. (Source: "Organization Structure and Communication Technology," Institute for Information Studies, 1990.)

National IT meetings today include demonstrations of high capacity fiber optics networks spanning the country that permit large bandwidth transmission of sound and image. The trend to the end of this century will be toward widespread availability of such networks with integrated modes for transmittal of voice, video, and data in multi-media formats.

B. General Recommendations

The Task Force evaluated considerable amounts of information as a basis for recommending improvements in access to IT. The term information technology has been used as a matter of emphasis, in keeping with the evolution of computing, to signify all resources based on digital micro-processor technology in conjunction with computing hardware. ITs major aspects are: a) networked hardware and software devices; and b) computer system processing capabilities. IT will be driven by both a continued need for increased central computing resources and rapid expansion of decentralized and distributed computing as an alternative to central mainframes.

General Principals of IT Planning

In general, University decision-making for IT should emphasize:

I. **Access:** All students, faculty and staff should be provided access via appropriate workstations (e.g., terminal or microcomputer) to networked IT needed to perform learning, teaching, research and administrative tasks.

2. Decentralization: IT should be supported with technical services that are highly distributed to the academic and administrative unit. Centralized support at the college/school level or campuswide organization should focus on efficiency in providing costly expertise or necessary administrative control.

3. Program Support: IT's primary emphasis should be on effective support of academic instruction, research, and necessary administrative functions. Secondarily, it should encourage efficient use of resources through promotion of standards in operations.

4. Robust Funding: Strategies to implement Task Force recommendations should involve a mix of: a) allocations of state funds provided in biennial budgets; b) new revenues generated through user fees dedicated to IT; c) new revenue sources from fund raising, grants, and donations; and d) revenues from auxiliary University services such as housing or telecommunications.

Organizational Improvement

Shared IT is currently provided by a variety of organizations including University Computing, the University Library, Telecommunications, and computing facilities in a number of academic and administrative units. Further decentralization is expected. Improved communication and coordination among IT provider organizations is essential.

We expect continued very rapid technology change with associated management problems. Techniques will need to be developed to rapidly introduce new high-leverage low-cost technologies when they are identified, to phase out existing technologies and hardware as they become obsolete, and to manage corresponding requirements for organizational and staffing change.

The University does not have an ongoing process for tracking technology and modeling demand for TT except within University Computing. In surveys of faculty needs and attitudes, the Task Force on Faculty Recruitment and Retention and the Task Force on Research and Graduate Education both identified infrastructure support computing as very important; further analysis of the specific areas most in need of greater support is required. A focal point with strong faculty input for an ongoing University-wide IT planning process is needed.

C. Near Term Recommendations

The task force recommends that University administration take action with an intermediate strategic planning horizon of one to five years in the following areas.

1. Central Facilities and Support

Centrally managed academic computing facilities will need to be regularly upgraded, in addition to the distributed or networked resources, as future academic users will still include those who need central capacities and expertise. Services should concentrate on storage, communications, and specialization that is most cost efficient in larger scale central equipment and staff configurations. In April, 1991, the academic VAX 8800 machine was upgraded by replacement with the administrative VAX 6000-430. This raised the computing power from approximately 11 VUPs performance to approximately 21 VUPs. [VUP=VAX Units of Processing, a measure of raw compute power calibrated to a VAX-11/780 as one unit.] Demand for mainframe CPU will continue to double every 3 to 5 years at least through the end of the decade. Corresponding increases in capacity will be critical to the research productivity of a substantial subset of faculty and graduate students, especially in the social sciences and professional schools. However, we do not recommend that the University consider central acquisition of a supercomputer or minisupercomputer, since such resources are available remotely by network and have a very limited customer base within the University.

- RECOMMENDATION: Stable funding should be identified for regular ongoing upgrades of central academic CPU and data storage at a rate of approximately $100,000 to $150,000 per year.

- RECOMMENDATION: Disk space available for academic computing should be doubled from the present 5GB to 11GB. Estimated cost: $42,000 capital cost plus $4,000/year additional maintenance cost.

- RECOMMENDATION: The Computing Center should make possible much better access to very large data sets for social science research. Possible changes which should be evaluated include (a) an improved tape handling system, (b) installation of an optical jukebox system and conversion of tapes to this format, (c) additional increase in the amount of available academic disk space (d) increased user services support for researchers using remote databases by network. Estimated cost: $100,000 to $200,000 plus 10% of capital cost in ongoing maintenance.

Major changes have occurred in administrative computing since January 1988. An important milestone was passed on October 15, 1990 when student records processing shifted from the antiquated IBM to the new VAX Banner system. Other major changes in progress include: on-line reporting of data elements to the OSSHE Office of Institutional Research Services, computerized touch-tone telephone registration, computer accessible student health records, the Banner financial aid module, and interface to the OSSHE Systems Support Services in Corvallis for the Fiscal Information System. These developments will impact unit operations at the departmental as well as central university level. Many of the regular transactions done manually with paper will convert to electronic processing. New reporting and analytical requirements will be met with a computerized database. There will be increased needs for departmental level equipment for office automation, electronic mail, access to external databases, and a means to get training and consulting support. The administrative VAX (DONALD) was upgraded in April, 1991 from a 6000-430 (21 VUPs processing power) to a VAX 6000-540 (52 VUPs). The capital costs of the DONALD upgrade were covered from Certificates of Participation (COPs).

- RECOMMENDATION: Establish a funding mechanism to maintain and upgrade the administrative systems that are evolving. Estimated cost unknown, depending on new functionality required and recharge model.

- RECOMMENDATION: Over the next two years Computing Center operations should be expanded towards 24 hours per day seven days per week. Estimated cost $40,000 per year for operator coverage plus $40,000 per year for increased DEC VAX maintenance contract coverage. Note that this does not address the need for in depth VAX systems and database support during non-business hours.

2. Network Connectivity

The basis for access to shared IT on campus is the UOnet campus network. Although network access is very far from ubiquitous, as of April 1991, there were more than 3,000 systems connected to the campus network. This number is expected to double every 12 to 18 months in the next few years. The network has grown from a research tool to a production network on which academic instruction, research, and administrative data processing critically depends.

As a long-term goal, Ethernet network connections should be extended into every academic space (e.g., classroom, lab, studio, library, and office) and selected administrative and auxiliary areas (e.g., academic support offices, residence halls, and health services). Cable should be sufficient in design and capacity to support data and future video services. The campus backbone should be upgraded as necessary to support increased demand (100 million bits/sec replacing the 10 million bits/sec now used). Greatly improved student access to networked microcomputers is also essential.

- RECOMMENDATION: By 1992, the fiber optic network should be extended into every building on campus; Ethernet network wiring should be installed to at least 90% of academic faculty and academic departmental offices; network wiring should be extended to at least 10% of classroom and other teaching spaces. Estimated cost, $300,000 one-time capital cost; $30,000/year maintenance cost; and additional personnel support costs in central network staff (see link in next recommendation). Auxiliary services will also have to include costs in rate structures to cover their network connections and usage.

Support for the network has not grown apace with its expansion in size and importance. Additional resources are needed to support anticipated growth and to move from current "business hours" support to 24 hour per day seven day a week monitoring and maintenance.

- RECOMMENDATION: One additional network support engineer should be added during 1991 to assist in installation and backbone support, particularly for Appletalk-related networking. Estimated cost: $45,000/year including benefits; $10,000 capital cost for computing support; plus $1,000/year for maintenance.

- RECOMMENDATION: In addition to expanded Computing Center operator coverage (see above), a network engineer should be available on call outside of normal working hours. Estimated cost for providing an engineer on call is $45,000/year (i.e., one additional network engineer), $10,000 capital cost for computing support, plus $1,000/year for maintenance.

Remote access capabilities should be expanded to support members of the University of Oregon community who need better access to network resources from off campus (e.g., homes, off campus residences, U of 0 programs in the Portland metropolitan area, and at other universities around the world) and to provide access to academic resources on the Internet such as wide area e-mail, library catalogs, remote databases, access to supercomputing, specialized national facilities such as national labs and telescopes, and NorthWestNet computing resources. Local and regional access to UO resources such as providing access to UO resources and the Internet by local

government and educational institutions or University Research Park tenants should be encouraged as long as such access does not have direct financial cost to the University.

- RECOMMENDATION: Transparent network access should be provided by 9,600 bit per second modem to UOnet resources. Estimated cost: up to $20,000 hardware cost depending on demand; approximately 0.2 additional FTE at $6,000 for network support and user services.

- RECOMMENDATION: Current levels of external connectivity should be continued, even if cost continues to rise. Additional connectivity should be provided at levels commensurate with demand.

3. Networked Computing Resources and Distributed Computing

During the next five years, opportunities for use of the campus network for multimedia electronic communications, shared file systems, shared and distributed databases, access to specialized computing and input/output resources, and client/server computing will increase rapidly. Opportunities for distributed computing (as an alternative both to centralized timesharing and to personal computers) will be coupled with greatly increased complexity in the distributed computing environment. In the immediate future the focus in University Computing's Network Services will continue to be largely just providing a ubiquitous campus network. However, this focus should shift to providing support for a distributed computing environment, and in particular in advertising opportunities for access to remote resources, coordinating departmental efforts, establishing standards, and assisting users in managing the technical complexity induced.

During the next 5 years windowed, mouse-based graphical user interfaces will become dominant as the standard for general purpose computer interfaces, with terminal-style interfaces remaining important only for specialized niche applications (e.g. Banner student records). We do not anticipate other technologies such as voice- and handwriting- recognition to be widely deployed in the University during this period. The critical problems will be coping with a variety of competing windowed interfaces and with an installed base of hardware that is not powerful enough to make effective use of the evolving standard interfaces.

There will be a similar proliferation in options for distributed database and file systems. University Computing has standardized on Oracle for database access, though it remains to be seen the extent to which distributed Oracle solutions will be desirable and to which Oracle should be seen as the standard for other database requirements within the University. For shared file access, we see a continued proliferation of vendor-supported and open standards. Currently, the dominant standards at U of 0 are Novell Netware, Sun's NFS, FTP, and Apple's AFP, each with its own largely separate client base. Major efforts will be needed to achieve greater interaction among platforms to hide this multiplicity of standards from the end user.

- RECOMMENDATION: University Computing Network Services should take the lead in identifying and deploying novel network resources, in advertising opportunities for access to remote resources, in creating standards, and in assisting users in managing the increased complexity of a distributed computing environment. Special attention should be given to integrating the various methods now in use for shared file access, to providing easy to use and ubiquitous electronic mail, and to supporting PCs and Macintosh computers acting as graphical front ends to network resources. Estimated cost: up to $50,000 per year.

- RECOMMENDATION: University Computing should encourage migration from VAX-based e-mail user interfaces to personal-computer-based e-mail by providing increased technical support for PC-based mail systems. Estimated support cost: approximately 0.2 FTE at $6,000.

- RECOMMENDATION: Electronic mail addresses and FAX numbers should be published for faculty, staff, and students as part of the University telephone directories and made available electronically. Estimated cost: approximately $2,000 per year.

- RECOMMENDATION: A pilot project implementing a Campus-Wide Information System (CWIS) should be established to provide unified electronic access to university documents, e.g. telephone book, calendars, current events information, administrative reference manuals, etc. Estimated cost: $0 hardware cost. Two to six person-months for setup. Ongoing software and document maintenance is estimated at 0.4 FTE at $12,000.

- RECOMMENDATION: University Computing should devote increased attention to supporting software that is available under multiple graphical user interfaces, and to integrating the various remote file access methods currently in use. Estimated cost: up to $30,000 per year.

4. Faculty Desktop Computing

Faculty desktop computing with appropriate functionality should be provided for every regular faculty member. For the 1991-93 budget request, the cost was estimated (five-year renewal cycle) to be $1,675,000 one-time expenses and $337,000 in recurring expenses. Procedures should be set for retiring or reallocating obsolete equipment.

- RECOMMENDATION: A survey of existing faculty should be conducted to identify how many currently have no access to computing in their office. A phased plan should be developed for implementing the general goal, for fairly determining allocations (given the expectation that "appropriate functionality" varies), and for reassessing the indirect costs in increased user services support that implementation of the goal would entail. In particular, consideration should be given to including as part of the University benefits package partial subsidies for faculty computer purchases.

- RECOMMENDATION: A phased fiscal plan should be developed for desktop computing as described above and should be implemented. Estimated cost: $1,000,000 to $2,000,000 one time costs plus $300,000 to $400,000 recurring costs.

5. Student Microcomputer Access

Student microcomputer access should be upgraded to current technology and expanded by creation of general purpose and discipline specialized laboratories. Current shared micro labs managed by University Computing total approximately 120 machines of various types, many quite antiquated. An additional 250 to 300 machines exist in departmental microcomputer labs across campus; however, most such labs have very specific foci and restrictive access policies. Virtually no micro labs providing open (not specifically course-related) student access exist on campus. Assuming a (perhaps unachievably high) 100 hr/week duty cycle, this could provide an average of about two hours per week access per student. A minimum standard of five hours of access per student per week should be set. For the 1991-93 budget request, this was estimated to cost $861,000 in one-time equipment purchases and $358,000 for recurring expenses for personnel and supplies.

- RECOMMENDATION: A survey of existing micro labs and their access policies should be conducted and the results made available to faculty and students seeking increased student access.

- RECOMMENDATION: Existing Computing Center micro labs should be upgraded by replacement of 50 Mac Plus computers with Mac SE/30 or Mac II si computers with Ethernet interfaces. Estimated capital cost: $150,000.

- RECOMMENDATION: Additional funding for student consultants and laboratory monitors should be identified to increase the duty cycles of the larger departmental labs providing open access to near the 100 hours/week mark. Assuming 5 labs each staffed an additional 40 hours/week by one student employee, estimated cost is approximately $50,000 per year.

- RECOMMENDATION: The five hours per student per week access goal should be funded by a dedicated student computing fee of $20 per student per term. Course-specific computer usage fees should also be considered.

- RECOMMENDATION: For those programs where a computer has become a major tool of learning, personal ownership of computers should be encouraged and supported by continuation and expansion of reduced price purchase arrangements with vendors.

- RECOMMENDATION: Much better access by students to electronic mail and other network resources should be provided. Estimated cost: $10,000.

Access to IT by students with physical and learning disabilities has not been systematically addressed at the U of 0 despite congressional and state mandates. Although anecdotal evidence suggests that there are substantial barriers to access for many types of disabilities, no comprehensive survey has been developed to identify the most crucial barriers. Such a survey and corresponding action plan is needed.

- RECOMMENDATION: Microlabs operated by University Computing should be remodeled to provide better access for students with mobility limitations.

- RECOMMENDATION: At least one large-format screen should be made available in each microlab to provide better access for students with visual impairment.

- RECOMMENDATION: A survey (probably conducted by Academic Advising and Student Services) should be undertaken to identify existing IT resources for which barriers to access exist affecting current U of 0 students.

6. Departmental Computing Facilities

Departmental computing facilities should be funded with a policy of effective division of responsibility between central and departmental staff. Special attention must be given to units that have added significant IT operations (e.g., College of Education and Yamada Language Center). Procedures should be set to assure coordination of central and department support for:

a/ configuration and installation
b/ software standardization; University-wide software licensing and distribution
c/ central funding for local computing activities
d/ training and supervision of local support personnel

e/ ways to make grant funded equipment (both computing cycles and specialized peripherals) available to other researchers when it is not fully utilized by the grantee while still maintaining grantee control

f/ central support for new technologies, e.g. authoring tools, visualization, multimedia, virtual reality

- RECOMMENDATION: Although basic user support for departmental computing should be the responsibility of individual units, the Computing Center should assist in coordinating such activities among departments and should provide basic user support where adequate departmental support does not exist. Centrally funded support for departmental computing should be reorganized, centralized, and expanded within the Computing Center to provide high quality second-level support. At least one additional individual should be hired to provide central support in the areas of microcomputer consulting and training, and one individual should be hired to provide centralized technical and user services support for Unix workstations. Estimated cost: $80,000 /year.

- RECOMMENDATION: Departmental computing facilities should be expanded with local area networks that provide the best fit of departmental needs to the information technology used in teaching and research.

- RECOMMENDATION: University Computing should take the lead in identifying and acquiring University-wide licenses for popular microcomputer software packages. Estimated cost: $10,000/year.

7. Security of Information Technology

Security of IT must be improved with procedures: to minimize electronic duplication that violates copyrights; to maintain privacy and integrity of electronic databases such as student records; and to insure physical security of IT equipment in campus facilities.

- RECOMMENDATION: All personal computers sold through the Computing Center should include bundled software (at least operating system and a word processor) to minimize temptation to use pirated software.

- RECOMMENDATION: As part of its regular upgrades, the Computing Center should obtain an Uninterruptable Power Supply capable of handling short (a few seconds) interruptions in power and making a graceful shutdown of the VAXcluster during longer power interruptions. Estimated cost: $32,000 if acquired as part of a major VAX upgrade.

- RECOMMENDATION: Access to network resources, including remote login to timesharing systems such as the Computing Center VAXcluster, needs to be better controlled. Secure authentication technology, probably based on MIT's Kerberos system, should be deployed as soon as it is readily available.

- RECOMMENDATION: A task force should be established focusing on IT security, particularly security of administrative data.

- RECOMMENDATION: A document discussing data and e-mail security, both in terms of current limitations and what the user can do to improve security, should be developed by the Computing Center and distributed.

8. Organizational **Improvement** and Coordination

Shared IT is currently provided by a variety of organizations including University Computing, the University Library, Telecommunications, and computing facilities in a number of academic and administrative units. Further decentralization is expected. Faculty oversight of these services ranges from strong to nonexistent. IT administrators today are highly stressed as they cope with divergent aspects of centralization and decentralization. There are struggles between efficient centralization demands and effective decentralization architectures. Grant Davis has written:

> "Herein lies the apparent paradox: Information Systems is being asked to move in two different directions concurrently; to give up control by flattening and spreading out the information management structure, while implementing increasingly complicated, integrated systems which physically and logically span the organization, and require a great deal of coordination." (SCUP Bitnet News; Oct 5, 1990; Vol 4 No. 21)

Improved communication and coordination among IT provider organizations is essential. University offices providing IT should be given clear organizational responsibilities for services that are increasingly overlapping. This includes units such as University Computing, Technical Science Administration, Instructional Media Center, Telecommunications, and the Continuation Center.

- RECOMMENDATION: Regular meetings of the directors of each of these administrative units, focusing on overlapping information technology responsibilities, should be scheduled.

- RECOMMENDATION: The University should appoint a faculty task force to look into realignment of responsibilities in the longer term, to update concepts of computing that have become networking, and to examine the organizational locus of telecommunications and other IT intense functions. Consideration should be given to the establishment of a University coordinating committee or function-specific task forces and to organizational restructuring of central IT leadership (e.g., new responsibilities in a Vice Provost for Information Technology position).

Information Technology Cost Summary

Many of the near term recommendations of the Task Force in the area of Information Technology are low cost or have currently unknown cost. Recommendations with identified costs include:

	one time	recurring
Central Facilities and Support		
Academic cpu upgrades		100,000-150,000
Academic disk space	42,000	4,000
Social Science data access	100,000-200,000	20,000
24 hour/day operation		80,000
Network Connectivity		
Network expansion	300,000	30,000
Support personnel	20,000	90,000
Dialin access	20,000	6,000
External access		0-25,000

(continued)	one **time**	recurring
Networked Resources		
New resources		0-50,000
E-mail support		8,000
Pilot CWIS		12,000
Integrated file access		0-30,000
Faculty **Desktop** Computing		
Phased plan	1,000,000-2,000,000	300,000-400,000
Student Micro Access		
Upgrade microlabs	150,000	50,000
Increased availability		50,000
Student e-mail	10,000	
Additional facilities	700,000	300,000
Departmental Facilities		
Additional staff		80,000
Site licenses		10,000

D. Considerations for Longer Term Recommendations

The Task Force has not deemed it useful to shape long term recommendations as the are so many near term needs and as the speed of technological change makes long term predictions highly speculative.

Appendix A - Initial List of Topics to be Evaluated

The following list of topics to be evaluated was originally identified in the July, 1990 "Preliminary Report" of the Task Force.

I. Physical Environment

We believe that the University must set a minimum standard for the physical environment in which our students live and study and in which we teach, administer, and perform research. This standard must include adequate building security, ventilation, lighting, window coverings, painting, acoustical, audiovisual capabilities (including audible bells), black/markerboards and supplies, clocks, lecterns, and access to mail, telephone, and computer services (i.e. access to networking). The Task Force plans to examine the following issues in detail, using the resources listed:

- Classroom/Lab/Studio (instructional environment)
  - Need a better system for management of classrooms and space environment!
  - Informal Task Force: Chereck, Fincher, Holbo, Kissler, Mahoney, Rowe, and Shipman
  - AV Survey of 133 classrooms (to be completed July 1990)
  - Estimates $500,000 to equip those 133 rooms with basic AV services (10 year plan)
  - Inventory of physical condition of classrooms, etc. yet to be determined
- Office/Administrative Environment
- Computer Service (Cabling) to Every Classroom/Lab/Studio/Office on Campus (see section IV)

'Space for Computing: Departmental? Centralized? Dormitory?

- Physical Plant
  - Physical Plant Director's Goals Statements
  - Consultants' Report
  - 24 hours/day service needs
  - Security
  - Bicycles
  - Automobiles
  - Transients and drug-dealing on campus
  - Fire and Security Alarm Study (commissioned by the Vice-President for Administration)

Mail Services

- Interinstitutional services (mail and library) in need of upgrading
- Including standardized electronic mail access

- Parking and Transportation
  - Parking Studies
- Allocation/Creation of Space for Study Halls
- Allocation/Creafion of Space for Library Services
  - Especially ongoing needs for discipline library units
- Allocation/Creation of Space for Shared Computing Facilities

Allocation/Creation of Space for Increased Child Care Facilities

- Child Care Task Force Survey

- External Research Opportunities
  - Improve faculty interface with Riverfront Research Park, Research Corridor
  - Review function of ASTI and its liaison with faculty members

II. Human/Professional Resources

A commitment to a safe, drug-free environment with support services for personnel must remain a top priority of this University. A major goal needed to remain a competitive employer in the next decade will be the need to provide child care and expanded benefits for employees, such as the new Employee Assistance Program. Furthermore, we will examine ways to train existing human and professional resource staff to use the technology proposed in other sections of this document.

Areas to **be examined include:**

- •Environmental Health and Safety
  - Comprehensive campus-wide chemical inventory is required for full compliance has been held up by lack of policy for methods of implementation
  - Focus should be on planning and training rather than crisis management
  - Need for reducing campus inventory of chemicals
  - Need for centralizing purchase and distribution of chemicals in one place (e.g. Chem Stores)
  - Improve cost distribution of waste disposal (now $80-90K/year, $60K from Chem., Biol.)
  - Explore possible changes in administration of this function
- Technical Science Administration
  - Investigate overlap/competition/cooperation with Chem Stores and Computing Center
- Student Health Care
  - Accreditation Self Study and accreditation report
- EMU/Housing
  - Food services, meeting support, catering, etc.
- •Child Care
  - Will consider issues of funding and access
  - Extent of subsidization by the University
  - Task Force Campus Survey
- *Office of Research and Sponsored Programs
  - Examine issue of who funds ORSP vs. who actually uses its services
  - Role of compliance coordinator and administrative interaction with EHS
  - Fiscal accountability
- Planning Office
  - "Oregon Experiment"
  - Existing campus area studies
- *Employee Assistance Program of Human Resources
- Academic Personnel Process
  - Faculty Recruitment
- • Bar Coding as applied to library circulation, student health, housing, and other aspects of infrastructure

III. Information Access

Strategies for improved Library support and access have been discussed at length by the Task Force. We feel strongly that the Library must pursue implementation of a "super catalog" which would include the present on-line catalog with additional bibliographic databases mounted on it (such as periodical indexes). It may be desirable to implement this concept at a state-wide level with the catalog centrally located at UO. The Task Force has called upon

Librarystaff to provide information on pricing structures, equipment, and staffing needs to accomplish this.

The Library component of the campus infrastructure will address the following:

- Document delivery (electronic and physical)
- Improved funding for staff
- Materials budget improvement and materials development
- Need for greater access to JANUS
- Distribution of media within the Library: electronic and printed formats
  - Develop procedures for collection development
  - Investigate trends toward buying access as a new form of information acquisition
  - Maintain equity of access to scholarship in respective fields regardless of format
- Future needs of the Library's on-line catalog:
  - Supplying enough terminals for inside users as well as sufficient ports for use by outside users
  - Electronic access to interlibrary loan from individuals' computers
  - Dial-up access to other on-line catalogs and bibliographic indices
  - Retrospective conversion of the Library's entire collection to JANUS
  - Individual CD-ROM databases
  - CPU upgrades needed to increase users and catalog capacity
- Centralization vs. satellite libraries
- Library administrative computing needs

IV. Computing Access

All faculty, students, and staff at the University must have access to networking, with campus network wiring extended to all staff offices (and classrooms and student dormitories as well, as implied in section I. above). In addition, all faculty and staff members must have access to a computer. The Task Force will propose minimum requirements for access and equipment. A comprehensive master plan for the future of campus computing (both academic and administrative) The Task Force will make recommendations for standardization of network software and for establishment of localized computing facilities (i.e. file/application servers). The bulk of our computing needs should be handled in a decentralized fashion. The Computing Center could identify, train, and supervise support people for these local facilities, in addition to providing global resources necessary to support the campus as a whole (intra- and inter-campus networking, Ed-Net, JANUS, e-mail services). The Task Force plans to consider the following issues:

A. Computer Service (Cabling) to Every Classroom/Lab/Studio/Office on Campus

The Task Force feels that this item is a high priority in keeping with the minimum standards for physical environment set forth in section I. The estimated cost of bringing UOnet wiring to existing offices and classrooms is $2,000,000 in one-time costs.

B. Networking Growth

There are currently 1096 systems hooked up to campus networking. This number is expected to double every 6-9 months in the foreseeable future. There must be funding for staff and equipment to support networking both at the Computing Center and on the Departmental level. Furthermore, the burden of electronic mail communication must be removed from the centralized

facilities and distributed to local file servers. This will allow better utilization of the VAX for large administrative and academic computing needs. The estimated cost of networking (including monitoring and upgrading), central facilities (a new mainframe computer, tape cartridge system, CD ROM technology, etc.), and central support personnel for the next two years alone is $1,825,500 in capital costs and $484,400 in recurring costs.

C. Faculty Desktop Computing

The cost of placing a workstation on the desktop of every faculty member on a five-year renewal cycle (and supporting that workstation with a local training personnel, file-server, software, peripherals, and adequate security) is estimated at $1,675,000 in capital costs and roughly $336,800 in recurring costs each year. Some of these costs are already covered by departments to some extent. Options for providing matching funds or incentives to pay partial costs of enhanced systems need to be considered.

D. Administrative Computing (including but not limited to the following)

- Computerized registration linked with administrative data and housing
- Fiscal Information System

Information access/reporting interface to OSSHE operations
Student Health Records
Banner Financial Aid Module
Banner Student Records System
Departmental level office equipment

F. Student Microcomputer Access

The Task Force will consider the idea of providing all students with five hours of access weekly to computing. This estimated cost will be roughly $861,175 for capital costs and $358,086 for recurring (personnel and operating) costs. Most students who presently have access to computers use them more than twenty hours a week. The Task Force will consider the options of increasing computer access using student fees, charging students on a per-use basis for computer time, and other ways of making it attractive for students to purchase their own systems. The figures stated above do not include the cost of bringing UOnet wiring to all dormitory rooms. This expense should appropriately be covered by housing fees, but it would cause a major increase in those fees.

F. Security of Computing

- Legal implications of electronic duplication
- Legal responsibilities of shared databases, especially those involving student records
- Protection of computer equipment in computer labs, offices, classrooms

G. Off-Campus Access

- Ed-Net

Market analysis is in progress
Proposed Distance Learning Classroom
Present budget is insufficient to develop program
Lack of knowledge among faculty about program

Appendix B - Analysis of Classroom Environment Surveys

At the end of Fall Term 1990, a total of 298 *Classroom Environment Survey* forms distributed by the Task Force on Infrastructure and Technology were returned by interested faculty and GTFs. These forms were developed in response to Professor Richard M. Brown's interest in the quality of the University's teaching and faculty office environment. A sample blank survey form is attached.

Of those returned from the campus-wide distribution to faculty and GTFs, only two survey forms were entirely unusable. Many respondents omitted one or two sections of the three-section form. Very few of the respondents signed their names on the returned surveys. A total of 212 classrooms and 126 offices were evaluated by respondents. According to figures from the Space Analyst's inventory, the University has 154 classrooms and 112 class laboratories, 2,092 faculty and GTF offices and 42 administrative offices. *Note: there are also 628 staff offices at the University but it is doubtful that any of them were included in this survey because the forms were addressed and distributed only to faculty and GTFs.*

The survey results suggest that 80% of the University's classroom and class laboratory space is rated as poor to bad while .06% of the University's office space was similarly sanctioned.

In preparing this analysis, only ratings of 4 (poor) or 5 (bad) were recorded.

Twenty-three buildings appear in the negative classroom rankings in the following order:

Building	# of Negative Classroom Ratings
Gilbert Hall	12
Pacific Hall	8
Deady Hall	7
Condon Hall	6
Lawrence Hall	6
Music	6
Straub Hall	6
Friendly Hall	5
Allen Hail	4
Agate Street	3
Education	3
Esslinger Hall	3
PLC	3
Willamette Hall	3
Chapman Hall	2
Chiles Center	2
Columbia	2
Gerlinger Hall	2
1761 Alder Street	1
Library	1
Villard Hall	

Further review of the surveys showed that certain classrooms were cited more frequently than others. Note, this survey analysis does not distinguish between traditional classrooms, science labs, music studios or other variations (such as swimming pools) of instructional space. In some cases, rooms identified as classrooms may in fact be offices (a result of a flaw in the survey form and the analyst's lack of total familiarity with all University space). The following list notes all classrooms with two or more negative listings:

Building	Classroom	# of Negative Ratings
Condon	204	7
Lawrence	107	7
PLC	180	7
Agate	#1	6
Pacific	123	6
Education	151	5
Fenton	110	5
Friendly	214	5
Gilbert	238	5
Gilbert	242	5
Lawrence	166	5
Pacific	314	5
Willamette	100	5
Allen	218	4
Allen	221	4
Chapman	202	4
Columbia	150	4
Condon	260	4
Friendly	118	4
Gerlinger	248	4
Gilbert	231	4
Gilbert	341	4
Lawrence	177	4
Music	198	4
Pacific	16	4
Pacific	334	4
Straub	154	4
Villard	202	4
Willamette	112	4
Agate	#2	3
Chapman	204	3
Chiles	127	3
Clinical Services	205	3
Condon	303	3
Condon	360	3
Deady	104	3
Deady	210	3
Education	152	3
Education	276	3
Esslinger	112	3

Building	**Classroom**	**#** of Negative Ratings
Fenton	105	3
Friendly	217	3
Gerlinger	Pool	3
Gilbert	137	3
Gilbert	244	3
Gilbert	336	3
Lawrence	249	3
Music	105	3
Music	192	3
Pacific	103	3
Straub	146	3
Willamette	110	3
Agate	#1535	2
Alder	1761	2
Allen	215	2
Allen	301A	2
Chiles	225	2
Columbia	44	2
Condon	301	2
Condon	313	2
Deady	208	2
Deady	301	2
Deady	303	2
Deady	306	2
Deady	307	2
Esslinger	77	2
Esslinger	Pool	2
Fenton	117	2
Friendly	106	2
Friendly	225	2
Gilbert	101	2
Gilbert	111	2
Gilbert	133	2
Gilbert	135	2
Gilbert	232	2
Lawrence	206	2
Lawrence	222	2
Library	133	2
Music	111	2
Music	115	2
Music	178	2
Pacific	30	2
Pacific	112B	2
Pacific	218	2
PLC	189	2
PLC	348	2
Straub	142	2
Straub	155	2
Straub	159	2
Straub	180	2

In all cases but two, and those were located in Friendly Hall, offices identified **in** the survey received only one negative comment each. This is logical; usually only one person is assigned to each office. The buildings receiving two or more negative office space ratings are listed below:

Building	# of Negative Office Ratings
PLC	24
Friendly	15
Esslinger	9
Gilbert	9
Music	9
Gerlinger	7
Lawrence	7
Condon	6
Pacific	5
Villard	5
Deady	4
Hendricks	4
Education	3
Fenton	3
Onyx Bridge	3
Straub	3
Agate St.	2
Bond Apts.	2
Chapman	2
Clinical Services	2
Condon School	2
Johnson Hall	2
Oregon Hall	2

From working with the forms, but without an actual tally of citations, respondents most frequently assigned negative ratings to the following features:

1. Windows (lack of or inoperative shades and blinds as well as windows which did not easily open and close).
2. Climate (heat, air conditioning, ventilation).
3. General cleanliness of classrooms and offices.
4. Condition of students' chairs/desks (frequent note was made that there appeared to be no systematic removal or replacement of broken chairs or desks from classrooms).
5. Condition of the teaching station (lack of a lectern assigned to a classroom was mentioned most frequently).
6. Condition and visibility of blackboards (one respondent [form #39] even diagrammed a Law School classroom suggesting an alternate position for the blackboard).

The summary above and the actual survey forms should prove valuable to the Physical Plant Director in planning an approach to improve the classroom and office environments of the teaching faculty. This subject was a major concern of the Task Force on Infrastructure and Technology as it focused on Physical Plant planning needs.

A STUDY TO EVALUATE THE CURRENT AND FUTURE AUDIOVISUAL EQUIPMENT REQUIREMENTS FOR THE UNIVERSITY OF OREGON

Prepared by

James V. Mahoney, Jr.
Director, Instructional Media Center

August 10, 1990

Appreciation is expressed to the following IMC staff who assisted in the preparation of this report: Lorilyn Jirges, Robert Fee, and Robert Barzee

Abridged Version (summary/abstracts)
A copy of this report, in its entirety,
is available in the Office of the Librarian.

TABLE OF CONTENTS

CONCLUSIONS

Results of this 155 room survey at the U of 0 suggests that the current inventory of audiovisual equipment is grossly inadequate to meet current and future needs of the U of O's instructional program. This conclusion is not unexpected in light of the many expressions of concern among faculty (Brown, 1990; Anderson, F. W., 1990) and letters of discontent on file in the IMC.

The AV equipment in the IMC inventory is old and in short supply, with high associated maintenance costs. Over 80 % of the current inventory exceeds the normal life expectancy for audiovisual/electronic equipment (10 years). The continuous requirement to deliver equipment on a campus-wide basis further exacerbates the deterioration problem. Delivery of audiovisual equipment to classrooms is contrary to the procedures and practices used among most colleges and universities. The trend among other OSSHE institutions is directed toward permanent classroom installation of AV equipment as acquisitions and funding allow, thus reducing or eliminating the requirement to deliver equipment. This is consistent with national trends among most colleges and universities.

The acquisition and installation of audiovisual equipment in classrooms throughout the University of Oregon will provide innumerable beneficial effects to faculty, students, and the instructional programs in general.

The acquisition of audiovisual equipment to support the instructional programs will have a significant impact on the services provided by the Instructional Media Center.

The plan to upgrade and modernize the instructional learning environment with adequate, permanently installed audiovisual equipment is consistent with trends and accomplishments among colleges and universities throughout the state and nation.

RECOMMENDED ACTFONS

1. Upgrade and equip one model classroom from each of the four categories (CAT1, CAT2, CAT3, CAT4), **to** allow faculty the opportunity to evaluate the improved instructional classroom environment and make recommendations for change based on individual needs.

2. Survey every faculty member during Fall term 1990 to determine audiovisual needs supportive of the teaching/learning environment.

3. Based on the evaluation of the model classrooms by faculty (Recommendation 1) and the results of the faculty survey (Recommendation 2), proceed with the audiovisual equipment installation of Priority 1 buildings and classrooms (Annex J).

4. Initiate the installation of audiovisual equipment in Priority 2 buildings and classrooms upon completion of Priority 1 installations.

5. Planning and implementation of all actions should be carried out with a multidisciplinary team (i.e. representatives from the Office of University Planning, the University Architect, the Office of Information Resources and Services, the Physical Plant, the Instructional Media Center, faculty, and other individuals with related interests).

6. All AV equipment acquisitions and installations should be coordinated and implemented through the IMC to insure the compatibility of equipment configurations, and address unique installation requirements, as well as maintenance and spare parts issues.

7. A ten year, straight-line depreciation program should be established and funded to allow for the replacement of AV equipment on a systematic basis.

8. Purchase a Light Value Projector (LVP) for Room 150 Columbia.

9. Purchase basic television production equipment (Annex I).

10. Provide funding for three staff positions in the IMC (TV Engineer, TV Producer/Director, and Photographer).

***ANNEX** B*

Audiovisual Equipment List for
CAT1, CAT2, CAT3 and CAT4 Classrooms

AV EQUIPMENT		CAT-1 (20-75seats)	CAT-2 (76-150)	CAT-3 (151-225)	CAT-4 (226-500+)
Overhead Projector	(1)	$220	$220	$350-700	$4000-8000
35mm slide projector	(2)	$680	$680	$815-4800	$4800-9600
16mm film projector	(3)	$5670/3 share)	$567-1700	$1700-5500	$5500-11000
TV monitor (27")	(4)	$1000-3000	$3000	--	--
TV Projector	(5)	--	$3500-5000	$10,000-20,000	$20,000-25,000
VCR (1/2" VHS)	(6)	$550	$550	$550	$550
VCR (3/4" Umatic)	(7)	--	--	$1800	$1800
Audio Cassette	(8)	$1200/3 share)	$120-350	$350	$950
Microphone (wireless)	(9)	--	--	$500-1270	$1270-3600
Sound system (PA)	(10)		--	$800	$1600
Projection Screen	(11)	$825	$825-1100	$1100	$2400
Lectern (floor)	(12)	–	--	--	$1900-3900
Lectern (tabletop)	(13)	$100	$100	$500-875	--
Instructor table		$150	$150	$150	$150
Pointer (Elec; laser)	(14)	--	--	**$225**	$550
Pointer (wood; plastic)		$4	$4	$4	$4
AV Security Cabinet		$300	$300	$300	--
AV Projection Shelf		$150	$150	$150	
Cost range by room category		$4666-**$6666**	$6666-$10,304	$17,494- * **$36,774**	**$45,474-** * $69,104

*Additional equipment for CAT3 and CAT4 rooms:
CD-ROM, CD(Audio) and videodisc players ($3000 - 5000)
Computers (IBM - $3000; Apple - $1500)
Light Valve Projector ($60,000 - 100,000)

(1)	Overhead Projector	
	Apollo, model 1004	$220
	3-M, model 313 360 W Quartz	$350
	Da-Lite/Besseler model PET-100, 360W Qrtz-Halogen	$700
	Electrosonic, model ES 8500, Video - 0/H	$4000
	Elmo Video Presenter, Model EV-308	$5500
	Wolf Visualizer-Laserex	$8000
(2)	35mm Slide Projector	
	Kodak, Ektagraphic, model-AV341 AM, 7"/8.5" lens	$680
	Elmo, Omnigraphic	$815
	Navitar, model 560, hi-Intensity Xenon	$4800
(3)	16mm Film Projector	
	Kodak, Ektagraphic, model CT 1000 w/zoom converter, slot load	$1700
	Eiki, 16mm Xenon, slot load, w/cinemascope lens	$5500
(4)	Television Monitor	
	NEC (26") model - PR 2600A	$1000
(5)	Television Projector	
	Macro Data, model 36	$3500
	Sharp, model XV-100 AS (LCD) video projector	$5000
	NEC	$10,000
	GE-Imager, video projector	$15,000
	Barco-Barcographic, model 800 (820 lumens)	$20,000
(6)	Panasonic, 1/2 VHS, model AG1150	$550
(7)	Sony, 3/4" U-matic, model VP7020	$1800
(8)	Califone InEn!, audio cassette w/mic, pa, model #3670C *(1 cassette player between 3 rooms)*	$350
	TASCAM Syncaset, 4 track stereo, model 234	$950
(9)	Microphone, wireless	
	Shure, model LS-14/839	$500
	Electro-voice, model 8108	$1270
	Sony, model WRT 28/L	$3600
(10)	Klipsch Hersey Speakers (pair) w/amp	$800
	Klipsch La Scala Speakers (pair) w/amp	$1600

(11) Projector Screens

Bretford Electric Wall Screens	
Series 700, 8' x 8', motorized	**$825**
Series 700, 12' x 12', motorized	$1100
Series 800, 20' x 20', motorized	$2400

(12) Lectern (floor), sound

Perma Power, model S-500	$850
Perma Power, model S-5201530	$920
Paso Sound Series, model L261P	$1000
Du Quaine-Lincoln	$1100
Visual Horizon	$1900-2000
DaLite Oravisual Delux #420	$2800
DaLite Chief Executive	$3300-3900

(13) Lectern (tabletop), without sound

Ouartel # 801	$100
Oklahoma	$100
Lectern (tabletop), with sound	
Oklahoma, model 123	$500
Hamilton Electronic (ac/dc)	$500
Perma Power Electronic, model S-122	$550
Visual Horizon	$475-875

(14) Electric Pointer - Ednalite $225

Laserex, laser pointer #LLP-100 $550

ANNEX D

Buildings Grouped By Priority - Depicting Rooms By Category with Cost Ranges

PRIORITY 1

BUILDING	CATEGORIES	COSTS
Allen	5 CAT1 + 1 CAT3	$40,824 - $70,104
Chapman	4 CAT1 + 1 CAT3	$36,158 - $63,438
Clinical Services	1 CAT3	$17,494 - $36,774
Columbia	3 CAT1 + 1 CAT4	$59,472 - $89,102
Condon	9 CAT1 + 1 CAT3	$59,488 - $96,768
Deady (*1 *Sem.)*	11 CAT1 + 1 C AT2	$57,992 - $83,630
Education	5 CAT1 + 3 CAT2	$43,328 - $64,242
Fenton	3 CAT1 + 1 CAT3	$31,492 - $56,772
Gerlinger	4 **CAT1** + 2 CAT2	$32,001 - $47,277
Gilbert *(*2 Sem.)*	20 CAT1, 4 CAT2, 2 CAT3, 1 CAT4	$200,451 - $317,188
Pacific (*1 *Sem.)*	6 CAT1, 1 CAT2, 1 CAT3	$52,156 - $87,074
PLC	5 CAT1 + 1 CAT4	$68,804 - $102,434
Villard	4 CAT1	$18,669 - $26,664
**SEMINAR ROOMS EXCLUDED - 4 ROOMS*	TOTAL	$718,329 - **$1,141,462**

CATEGORIES:

CAT1 - 20 to 75 seats
CAT2 - 76 to 150 seats
CAT3 - 151 to 225 seats
CAT4 - 226 to 500+ seats

TOTAL PRIORITY 1.
CAT1 - 79 rooms - $368,614 - 526,614
CAT2 - 11 rooms - $ 73,326 113,344
CAT3 - 8 rooms - $139,952 294,192
CAT4 - 3 rooms - $136,422 - 207,312
Seminar 4 rooms - - —

*105 rooms - $718,314 - **$1,141,462***

PRIORITY 2

BUILDING	CATEGORIES	COSTS
Ed. Psych.	2 CAT1	$9332 - $13,332
Esslinger	4 CAT1	$18,664 - $26,664
Friendly *(*3 Sem.)*	5 CAT1	$23,330 - $33,330
IMC *(*ISem.)*	4 CAT1	**$18,664 -** $26,664
Knight Library	1 CAT1	$4666 - $6666
Lawrence	5 CAT1, 1 C AT3, 1 CAT4	$86,298 - $139,208
Straub	7 CAT1 + **1 CAT2**	**$39,328 -** $56,966
Volcanology	1 CAT1	$4666 - $6666
Willamette	2 CAT1 + 1 CAT2	$15,998 - $23,636
Cascade (* iSem.)	2 CAT1, 1 CAT4	$54,806 - $82,436
Chiles	4 CAT1+ 1 CAT2	$25,330 - $36,968
Klamath	2 CAT1	$9332 - $13,332
**SEMINAR ROOMS EXCLUDED - 4 ROOMS*	TOTAL	**$310,414 -** $465,868

CATEGORIES:

CAT1 - 20 to 75 seats
CAT2 - 76 to 150 seats
CAT3 - 151 to 225 seats
CAT4 - 226 to 500+ seats

TOTAL PRIORITY 2

CAT1 - 39 rooms - $181,974 - 259,974
CAT2 - 3 rooms - $ 19,998 - 30,912
CAT3 - 1 room - $ 17,494 - 36,774
CAT4 - 2 rooms $ 90,948 - 138,208
Seminar - 5 rooms -

$310,414 - 465,868

ANNEX E

Summary of Estimated Costs
for Campus-wide Audiovisual Requirements

SUMMARY

CATEGORIES PRIORITY 1- flOOMSr/a/05 rms) *PRIORITY 2* - ROOMS/% *j50 rms)*

CAT1	**79** / **75.2%**	**39** / 78%
CAT2	11 / 10.5%	3/ 6%
CATS	81 7.6%	1 / 2%
CAT4	3/ 2.9%	2 / 4%
Seminar*	41 3.8%	5 / 10%

PRIORITY 1

13 buildings, 101 classrooms (67.7%) *(Excludes Seminar rooms)

79(01) x	4,666 - **6,666**	=	**$ 368,614 - 526,614**
11(02) x	**6,666 - 10,304**	=	$ **73,326 -** 113,344
8(03) x	17,494 - 36,774	=	$ 139,952 - 294,192
3(C4) x	45,474 - 69,104		$ 136,422 - 207,312

PRIORITY 2

12 buildings, 45 classrooms (30.3%) *(Excludes Seminar rooms)

39(01) x	4,666 6,666	=	$ 181,974 - 259,974
3(C2) x	6,666 - 10,304		$ 19,998 30,912
1(C3) x	17,494 - **36,774**	=	$ **17,494 - 36,774**
2(C4) x	**45,474 - 69,104**	=	$ 90,948 138,208

PRIORITY 1 - $718,314 - 1,141,462
PRIORITY 2 - $310,414 - 465,868

Total $1,028,728 - 1,607,330

less 10% dealer discount
($102,873) - (160,733)

range $925,855 - 1,446,597

PRIORITY 3,

3 buildings (Agate), 3 rooms - not recommended for AV equipment installation.

ANNEX F

Audiovisual Requirements Displayed By
Type, Count/Value and Building Priorities

PRIORITY 1 EQUIPMENT (ITEM) COUNTNALUE ($809,306)

Overhead Projectors	Allen	Chap.	CLS	Colmb.	Cond.	Deady	Educ.	Fenton	Gerling.	Gilbert	Pacific	PLC	Vilfard	TOTALS
$220 $350 $700 $4000-8000	5 1	4 1	 1 	3 1(8000)	9 1	**12**	8	3 1	6	25 1 1 1(4000)	7 1	5 1(5500)	4	**91** x $220 = $20,020 6 x $350 =$ 2100 2 x $700 = $1400 (4000) + (8000) + (5550) = $17,500
35mm Proj. (slide) $680 $815 $4800	5 1	4 1	 2 	3 2	9 1	12	8	3 1	6	**24** 2 1	8	6 1	4	**92** x $680 - $62,560 8 x $815 = $6520 4 x $4800 = $19,200
16mm Proj. (film) $1700 $5500	3	5	2	1 2	5	6	3	2	2	13 1	5	2 1	2	51 x $1700 = $86,700 4 x $5500 = $22,000
TV Monitors $1000	9	5		3	**12**	17	8	5	7	40	8	7	5	126 x $1000 = $126,000
TV Projectors $3500 $5000 $10,000 $15,000 $20,000	1	1	 1 	 1 •	 1 	1	3	1	2	3 2	1 1	 1 		11 x $5000 = $55,000 6 x $10,000 = $60,000 3 x $15,000 = $45,000 1 x $20,000 = $20,000 •1BM/Apple = $ 4400
VCR **(1/2")** $550	6	5	1	4	10	12	8	4	6	27	7	6	4	100 x $550 = $55,000
U-Matic (3/4") $1800				1										1 x $1800 = $1800
Audio Cassette Mono - $350 Stereo $950	3	3	1	 1 1	5	5	3	2	2	 11 1	4	 2 1	2	44 x $350 = $15,400 3 x $950 = $2850

*IBM = $2920
"Apple = $1427

PRIORITY 1 EQUIPMENT (ITEM) COUNTNALUE

	Allen	Chap.	CLS	Coimb.	Cond.	Deady	Educ.	Fenton	Gerling.	Gilbert	Pacific	PLC	Villard	TOTALS
Microphone (wireless) $500 $1270 $3600	1	1	1	 1	1			1		2 1	1	 1		8 x $500 = $4000 2 x $1270 = $2540 1 x $3600 = $3600
Sound System $8 0 0 $1600	1	1	1	 1	1			1		2 1	1	 1		8 x $800 = $6400 3 x $1600 - $4800
Projection Screen $825 $1 1 00 $2400* *(201x20`)	5 1	4 1	 1	3 1	9 1	12	8	3 1	4 2	24 2 1	7 1	5 1	4	88 x $825 = $72,600 10 x $1100 = $11,000 3 x $2400 - $7200
Lectern (floor) $2000 $2800 $3500			1 1							1		1		2 x $2000 = $4000 1 x $2800 = $2800 1 x $3500 = $3500
Lectern (table) $100 $750 $875	4 1	4 1		3	9 1	12	8	3 1	6	24 2	7 1	5	4	89 x $100 - $8900 2 x $750 = $1500 5 x $875 = $4375
instructor table $1 5 0	6	5		4	10	12	8	4	6	27	8	6	4	100 x $150 = $15,00
Pointer (Elec; laser) $225 $550		1	1	 1	1			1		2 1	1	 1		7 x $225 = $1575 3 x $550 = $1650

PRIORITY 1 EQUIPMENT (ITEM) COUNT/VALUE

	Allen	Chap.	CLS	Colmb.	Cond.	Deady	Educ.	Fenton	Gerling.	Gilbert	Pacific	PLC	Vi!lard	TOTALS
Pointer (wood) $4	6	5	4	4	10	12	8	4	6	27	8	6	4	104 x $4 . $416
AV Security Cabinet $300	6	5	1	4	10	12	8	4	6	27	8	6	4	101 x $300. $30,300
AV Projection Shell $1 5 0	5	5		3	10	12	8	4	6	27	8	6	4	98 x $150 . $14,700

PRIORITY 2 EQUIPMENT (ITEM) COUNTNALUE ($333,899

	Casc.	Chiles	EdPsy	Esslin.	Friend.	IMC	Klamath	Knight	Lawr.	Straub	Volcan.	Willam.	TOTALS
Overhead projectors $220 $350 $700 $5500		3	2	4	8	4	2	1	5 1 1	8	1	3	41 x $220 - $9020 1 x $700 . $700 1 x $5500 - $5500
35mm slide proj. $680 $815 $4800		3	2	4	5	4	2	1	5 3	8	1	2	37 x $680 - $25,160 3 x $4800 - $14,400
16mm film proj. $1700 $5500		2	1	2	2	2	1	1	5 2	4	1	1	22 x $1700 - $37,400 2 x $5500 = $11,000
TV monitors (261 $1000	4	6	3	10	8	5	3	2	8	9	2	3	63 x $1000 .. $63,000
TV projectors $5000 $10,000 $20,000						2			 1 1	1		1 1	*4* x $5000 - $20,000 2 x $10,000 - $20,000 1 x $20,000 = $20,000
VCR *(1121* $550	3	5	2	4	5	4	2	1	7	8	1	4	46 x $550 .. $25,300
U-Matic (3141 $1800						2							2 x $1800 = $3600
Audio cassette $350 $950		2	1	2	2	2	1	1	3 1	4	1	1 1	20 x $350 - $7000 2 x $950 = $1900

PRIORITY 2 EQUIPMENT(ITEMM COUNT/VALUE

	Casc.	Chiles	EdPsy	Esslin.	Friend.	IMC	Klamath	Knight	Lawr.	Straub	Volcan.	Willam.	TOTALS
Screens $825 $1100 $2400			2	4	5	4		1	5 1 1	8	1		30 x $825 = $24,750 1 x $1100 = $1100 1 x $2400 = $2400
Microphone(wireless) $500 $1270						1			1 1			1	1 x $500 = $500 3 x $1270 = $3810
Sound system $800 $1600									1 1				1 x $800 = $800 1 x $1600 = $1600
Lectern (floor) $2000						1			1				2 x $2000 = $4000
Lectern (table top) $100 $875			2	4	5	3 1	1	1	5 1	8	1	2	32 x $100 = $3200 2 x $875 = $1750
Instructor table $150			2	4	5	4	1	1	7	8	1	2	35 x $150 = $5250
Pointer (Elec./laser) $225 $550									1 1				1 x $225 = $225 1 x $550 = $550
Pointer (wood) $4	3	5	2	4	5	4	2	1	7	8	1	4	46 x $4 = $184
AV security cabinet $300	3	5	2	4	5	4	1	1	7	8	1	4	45 x $300 = $13,500
AV projection shell $150	3	5	2	4	5	4	1	1	6	8	1	2	42 x $150 = $6300

***ANNEX** G*

Comparative Institutional Expense
to Mediate Classrooms in Accordance With
Room Capacity

COMPARATIVE INSTITUTIONAL ***EXPENSE FOR MEDIATED CLASSROOMS***

StateUniversity Of New York (Buffalo)

CAT 1 (10 - 35)	$6155 - 10,305
CAT 2 (36 - 70)	$8855 - 15,155
CAT 3a (71 - 225)	$22,900 (without projection booth)
CAT 3b (75 - 225)	$38,200* (with projection booth)

** - to be added - $60,000* ***Light Value Projector***

University of Colorado (Boulder)

CAT 1 (25 - 40)	$3540 - 5990
CAT 2 (100 -150)	$10,785 - 15,085

University of California, Santa Cruz

Media Package I	$5500
Media Package 2	**$17,790**
Media Package 3	**$50,000+ (customized configurations)**

University of Oregon

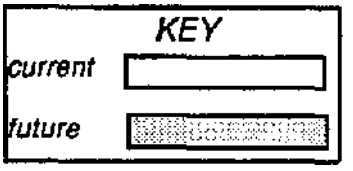
CAT 1 (20 - 75)	**$4666 - 6666**
CAT 2 (76 - 150)	**$6666 - 10,304**
CAT 3 (151 - 225)	**$17,494 - 36,774**
CAT 4 (226 - 500+)	**$45,474 - 69,104**

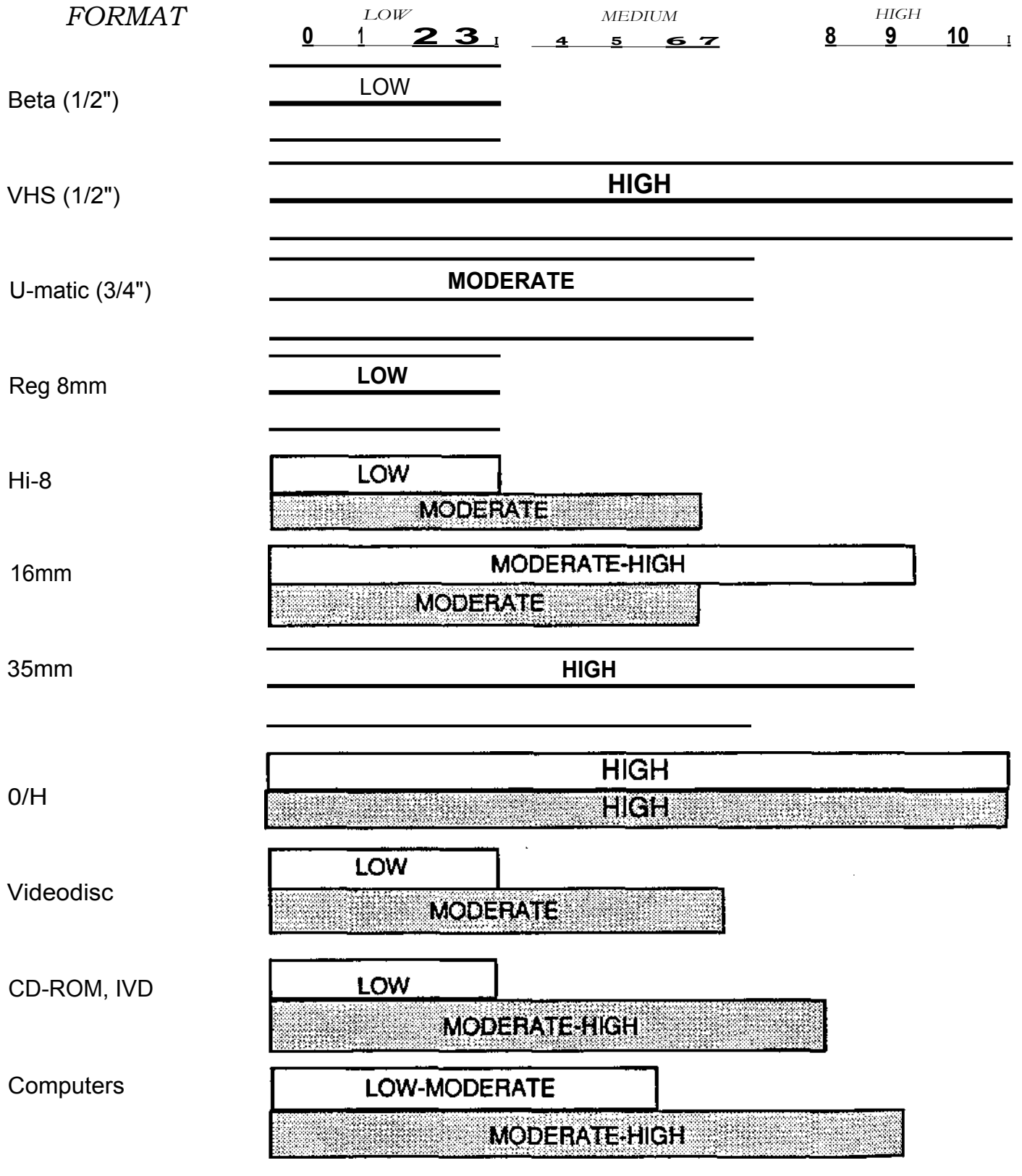
ANNEX H

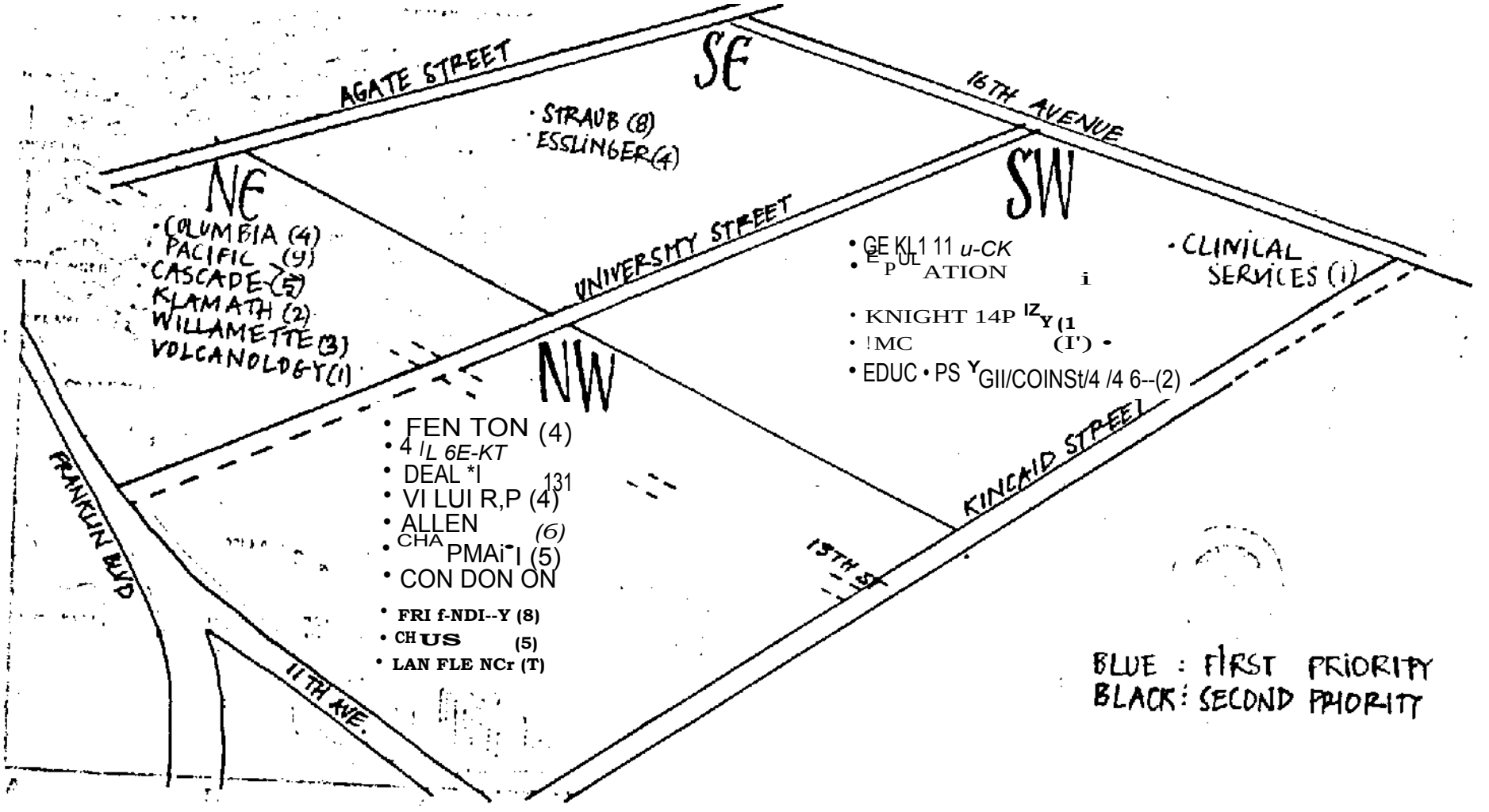
OSSHE Survey Results Related to Mediation of Campus Classrooms

ANNEX H

"What Audiovisual formats are currently used within your institution, and what formats do you predict will be most utilized in **the next 3 to 5 years?"**
(**OSSHE survey, June 1990)**







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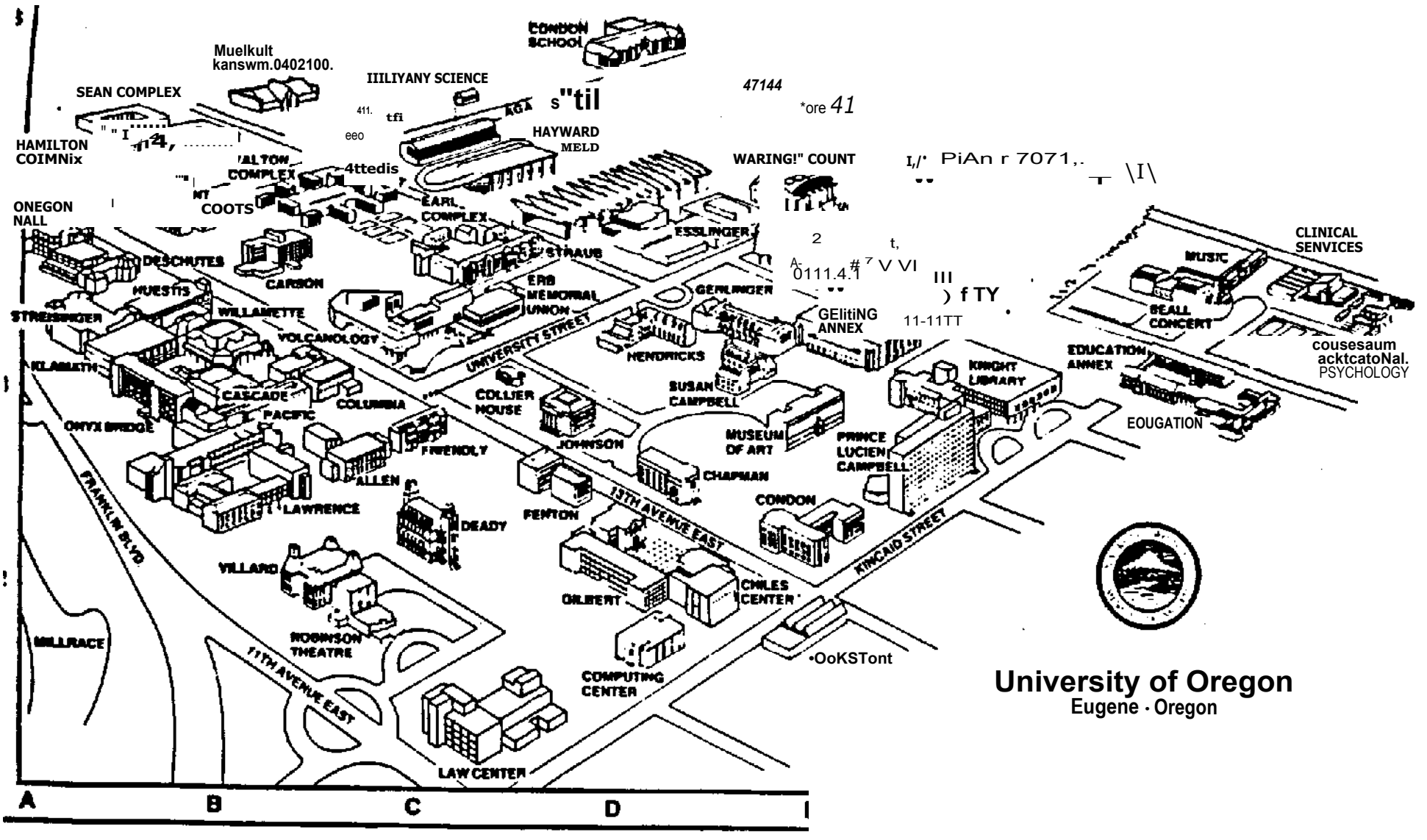

University of Oregon
Eugene · Oregon

UNIVERSITY OF OREGON

April 17, 1991

MEMORANDUM

To: George Shi an

From: George Hech /Dave Rowe

Subject: Infrastructure repair

This memo is my response to Dan's request to send you some information on the infrastructure repair situation on the campus.

I am going to keep this to a very brief summary report because there is a very extensive body of detail available. However, its scope and poundage tend to detract from the fundamental message.

The kind of complete and detailed analysis of all the things that need to be addressed on the campus is the kind of study that the University of Nebraska spent three years developing. It details each building, each building system, the nature of the repair, the priority of the repair, and the cost of the repair. The OSSHE system hired a consultant to do a similar study at the Oregon State University campus. Sixty three academic and support buildings were evaluated by the consulting firm.

Excluded from the study were the utility systems, resident halls, student facilities and facilities of the agricultural experiment station. The consultant found that at OSU about $155 million worth of repair and modernization/adaption work would be required. Of this $155 million 20%, was categorized as capital repair projects; $35 million as deferred maintenance and $100 million as modernization adaptation. This resulted in a development of three categories and percentages *as* follows: 1) Capital repair projects - 12%-(20K); (2) Deferred Maintenance - 22% - (35K); (3) Modernization adaptation -(100K) - 66%. A different approach to describing these needs were as follows: Exterior - 14%; Interior - 18% - Handicapped access 7%; Health fire and safety 9%; Htg ventilation and air conditioning 26%; Plumbing 5%; electrical 20%.

I feel that it is likely that our campus with 2.5 million sq. ft. versus 3.5 million sq. ft. for OSU would have comparable break outs and costs. Based on the above ratio (2.5/3.5 million S.F.) our total for repair, modernization and adaptation would be $100,000,000. These facts were brought to the attention of the OSSHE Board at their November 16, 1990 meeting.

Our studies here at the UO have tended to focus on the areas of (1) Capital Repair Projects and (2) Deferred Maintenance.

The methodology for this study which took approximately three months on our campus was to send one of our Project Inspectors through all of the buildings on campus and make a visual assessment of the projects. No detailed analysis was made of the mechanical or utility systems, and no effort was made to try to determine the cost of bringing old areas such as teaching labs up to current code.

In spite of that, a total requirement of $35,261,000 was identified in 1991.

CAMPUS WIDE SYSTEMS AND UTILITIES

System	Severity Code	Description	Needed Repairs	Estimated Cost ($000)
1. Foundation	B-3	Campus tunnel system deterioration	Repair, replace tunnels	$4,000,000
2. 2. HVAC	B-4	Steam,CW system deterioration	Update systems	$6,000,000
3. Electrical	A-4	Electrical system deterioration	Update system	$4,000,000
4. Plumbing	**A-4**	Campus backflow preventers	Install	$1,000,000
5. Grounds	B-3	Campus landscape deterioration	Repair, replace	$ 500,000
6. Roads & Walkways	B-3	Campus street & walk deterioration	Repair, replace	$1,500,000
7. Exterior Lighting	A-3	Campus lighting deterioration	Repair, replace	$1,500,000
		CAMPUS WIDE SYSTEMS		$18,500,000

****

1990 DEFERRED MAINTENANCE SURVEY
BUILDING INDEX

NO	BUILDING	ADDRESS	GROSS SF	AGE	1990 ESTIMATE
1	Lawrence Hall	1190 Franklin Blvd	118,860	76	$195,000
2	Chiles	925 E. 13th Ave	15,798	5	
3	Gilbert Hall	955 E. 13th Ave	80,926	72	280,000
4	Condon Hall	1321 Kincaid St	41,297	66	130,000
5	Deady Hall	1201 Old Campus Lane	25,437	114	337,000
6	Chapman Hall	990 E. 13th Ave	23,062	51	42,000
7	Education	1571 Alder St	32,067	69	163,000
8	Prince Lucien Campbell	1415 Kincaid St	106,831	28	499,000
9	Friendly Hall	1161 E. 13th Ave	39,163	97	132,000
11	Gerlinger Hail	1468 University St	63,394	70	231,000
15	Volcanology	1255 E. 13th Ave	19,501	54	134,000
16	Johnson Hall	1098 E. 13th Ave	31,176	75	203,000
17	Allen Hall	1020 University St	38,383	68	176,000
18	Knight Library	1501 Kincaid St	233,975	53	140,000
19	Fenton Hall	1021 E. 13th Ave	27,687	83	106,000
20	McArthur Court	1601 University St	130,413	64	480,000
23	F glinger Hall	1525 University St	99,296	54	130,000
24	Museum of Fine Arts	1430 Johnson Lane	30,079	60	173,000
25	Music	961 E. 18th Ave	70,456	70	305,000
28	Cascade Annex (M.N.H.old)	1264 Franklin Blvd	9,910	65	20,000
29	Clinical Services	901 E. 18th Ave	45,499	21	54,000
30	Law Center	1101 Kincaid St	82,187	21	108,000
31	Villard Hall	1109 Old Campus Lane	44,773	105	441,000
32	Heating Plant	1155 Franklin Blvd	23,757	41	5,120,000
35	Pacific Hall (Sci.1)	1210 Franklin Blvd	121,435	39	2,078,000
36	Columbia Hall	1215 E. 13th Ave	26,268	29	30,000
37	Onyx Bridge/Eniv.Health(EW)	1348 Franklin Blvd	53,647	28	258,000
38	Klamath Hall (Sci.2)	1370 Franklin Blvd	177,138	24	1,368,000
39	Computer Center	1225 Kincaid St	22,472	23	540,000
40	Huestis(Sci.3)	1425 E. 13th Ave	62,725	17	199,000
42	Oregon Hall	1585 E. 13th Ave	81,761	16	1,102,000
59	Rec. Facilities-'Handball/Tennis	1320 E. 15th Ave	67,115	18	42,000
62	Gerlinger Annex	1484 University St	53,657	21	62,000
71	Hendricks Hail	1408 University St	26,421	73	163,000
72	Straub Hall	1319 E. 15th Ave	77,775	61	262,000
75	Svman Campbell Hall	1431 Johnson Lane	20,818	69	340,000
87	DeBusk	1675 Agate St	10,412	42	45,000
147	Condon School	1787 Agate	40,220	66	625,000
530	Visual Arts Resources (d)	1802 Moss	2,460	28	-22,000
568	Itnl.Inst.for Snorts & Hum. (d)	1479 Moss	2,657	25	20,010
582	Alder St.	1791 Alder St.	2,860	24	6,000

TOTAL ESTIMATED UO DEFERRED MAINTENANCE 1990 $35,261,010

1) Roof, is roof repairs. Many of our roofs are in an advanced stage of deterioration resulting in leaking and damage to interior surfaces.

As the roof begins to fail, insulation, wood and the roof deck may become damaged by water making the final most of the repair even greater.

2) Exterior walls - Most buildings have had moisture damage to the exterior walls. There are also many cases where the brick and mortar has reached the point where it is no longer sound and, as the recent repairs to the Art Museum have illustrated, must be renewed to protect the interior areas.

3) Floors - This is replacement and removal of cracked and damaged floors.

4) Ceilings - Repair and minor painting to ceilings.

5) Interior Walls, doors and railings - This is both minor and major repairs replastering and repainting to interior walls, doors, and railings. Typically these have been damaged by water from leaking roofs or exterior walls.

6) Fire Alarms - Several of the buildings on campus have virtually no fire alarms and others have deteriorated beyond repair.

7) HVAC - This is heating, ventilation and air conditioning work to correct indoor air quality problems, lack of air conditioning, replacement of boilers (such as Condon School), and removal of asbestos in machine room areas.

8) Conveyance - This is primarily elevators.

9) Electrical - This is a variety of electrical system repairs to accommodate the greater demands of our electrical system modern instruction.

10) Other - This is a variety of items including asbestos removal, plumbing repairs, replacement of asbestos contaminated ceilings and a variety of other items.

I also have included pages from the University's capital construction budget request for the three biennia beginning 1991-1993. To a great extent, the projects included in that request are in addition to the $35 million we believe is needed to correct the consequences of deferred maintenance.

Most of the projects listed in the Capital Construction budget request relate to accommodating needs of specific programs within the University, but a few respond to campus-wide infrastructure requirements. These include a series of improvements to the campus chilled water, domestic water, and electrical distribution systems. Basic modifications to the ventilation system in Klamath Hall, the improvement of elevators in Prince Lucien Campbell Hall, and an amount for effecting safety improvements in general also are included.

All of the utility systems, and particularly the chilled water system, are below standard.

1) The chilled water system does not have the capacity to provide the level of service needed by existing buildings. Any new buildings brought on line will exacerbate that situation.
2) State law requires that potable water backflow preventers be installed to prevent contamination of the public water supply The campus currently does not comply with this provision of the State Sanitation Code.
3) Although the electrical system has been partially modernized, additional modifications are needed to raise the system to minimally acceptable standards of reliable performance.

One final note seems appropriate. We believe it axiomatic that the buildings and other facilities systems (streets, parking, utilities, etc.) of a University campus serve only to support the fundamental missions of the institution. Thus, these facilities needs ought to be responsive to identified academic needs. At the present time, the University is engaged in a planning activity that should result in the identification of academic program needs and priorities. To a great extent the program-driven facilities needs -- such as those which constitute the bulk of the University's capital construction budget request -- cannot be determined until the direction of the academic program has been established. Thus, we would expect that the capital construction needs identified in 2989 for the 1991-1993 budget may be modified significantly before submitting the 1993-1995 request next January.

However, we need to point out that the need for programs which would correct the consequences of inadequate maintenance and which would provide relief for the over burdened utility systems exist independent of specific academic program requirements. Moreover, it is becoming increasingly clear that the important academic facilities needs of the institution --whatever they may be -- cannot be met in an adequate, cost-effective fashion until these basic infrastructure requirements are satisfied.