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FACILITIES MANAGEMENT

Introduction

Facilities management involves the effective utilization of existing resources and the planning and construction of future facilities. Each of these activities is closely linked with the overall university planning and resources management systems. Effective management of current facilities includes programs to keep facilities clean and in good repair, monitor the scheduled preventive and maintenance work orders, implement an energy management system, and manage waste, including hazardous and recycled materials.

Facilities planning at NJIT is a dynamic process, with periodic updates to anticipate changing institutional and State needs. Milestones in this process were the 1961 and 1981 comprehensive facilities master plans developed as blueprints for the upcoming decades. By 1975, the 1961 plan had been fully realized. The campus consisted of one million square feet of buildings on a twenty acre campus. In recognition of the changing physical needs which the university's continuing evolution represented, a major review and analysis of NJIT's programs, facilities and surroundings was undertaken in 1981. Largely as a result of that effort, by 1989 more than 600,000 square feet of building had been either newly constructed or rehabilitated, and approximately twenty acres of land added. Building upon the 1981 plan, a third comprehensive planning document, responsive to and anticipating the programmatic development of the university, was completed in 1990. It is designed to take NJIT into the 21st century.

NJIT's facilities planning process, particularly during the past decade, has taken into account the contiguous area, which embraces Newark's three other public higher education institutions, low and moderate income housing,

and the county government seat. University Heights is developing rapidly in a planned fashion, with substantial community participation, owing in considerable measure to the efforts of the Council for Higher Education in Newark (CHEN). As expected, land values have risen, land is scarce, and problems of parking and traffic have grown more severe. Long-term facilities planning is, therefore, even more critical.

Facilities Planning

The facilities planning process begins with the most current master plan which is reviewed and modified based upon recent and planned developments. Academic, enrollment, financial and facilities plans are reviewed in an iterative process shown on the Facilities Planning Process Flow Chart (Figure 15.1). Input from faculty, administrators, students and alumni is sought and factored into the process.

Final approval of the master plan is accomplished through review and discussion with various departments, deans, vice presidents, the President and Board of Trustees. Ranking of projects consistent with funds available is accomplished through the same process, with final approval by the President and Board of Trustees.

The 1990 plan includes sections on admissions, enrollment and financial resources that informed the planning process. The planning assumptions employed were appropriate at the time and led to the establishment of priorities for the next phase of construction.

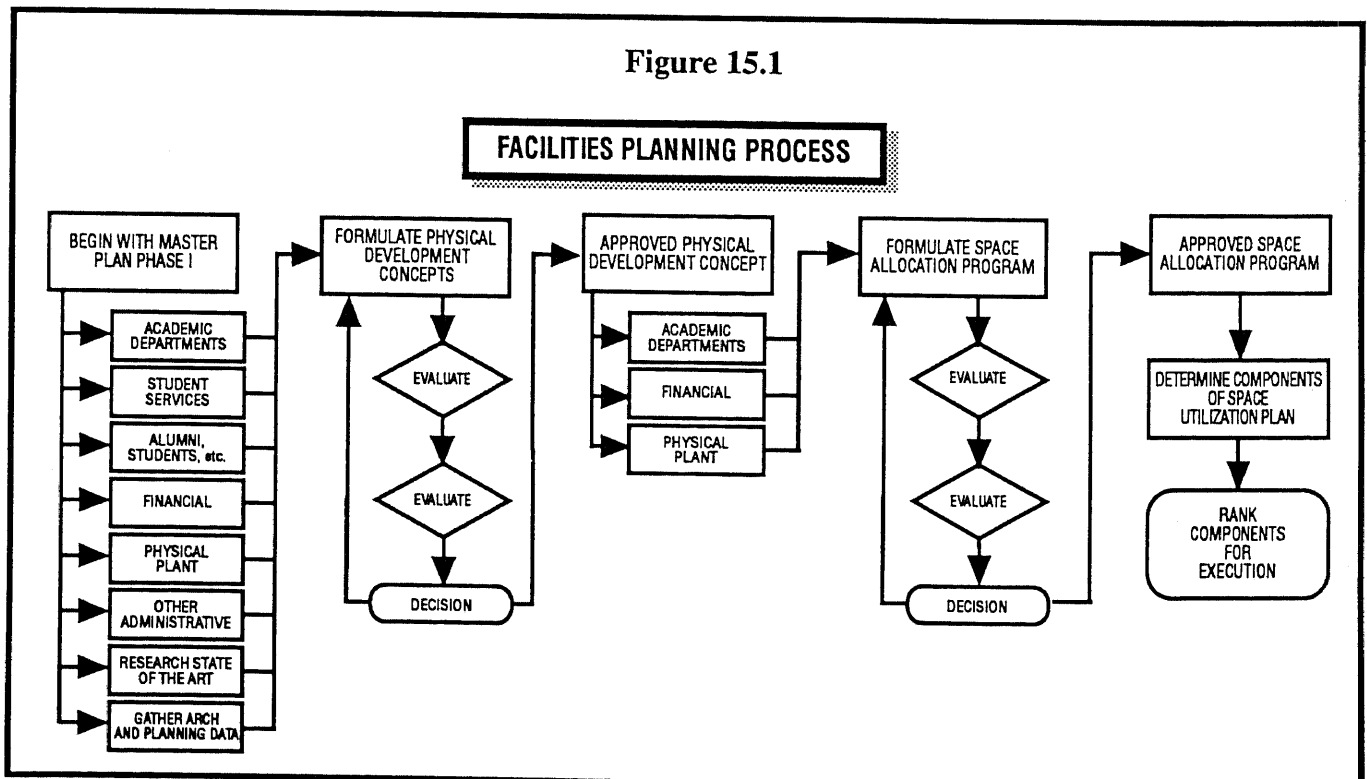
The near-term projects were identified as highest priority. The projects and funding sources follow:

	1988 State Bond Issue	NJIT Bonds
Central Avenue Building (Library, School of Industrial Management, and Enrollment Planning)	\$13,300,000	
Electrical and Computer Engineering Addition	\$4,200,000	
Student Services Center (Rehabilitation)	600,000	200,000
Weston/School of Architecture (Rehabilitation)	1,900,000	
Parking Structure		12,000,000
Classroom Facility (Rehabilitation)		2,800,000
	\$20,000,000	\$15,000,000

The long-range projects included in the plan anticipate university growth and support the development of Newark, particularly University Heights. They include an addition to the Center for Environmental Engineering and Science, a free-standing building for the School of Architecture, a fourth residence hall, and expansion of the new library. A brief rationale for each project is provided in the plan. The projects will require significant coordination with the City of Newark, particularly regarding future land acquisition and the development of a Science Park.

Although there is insufficient information at the present time to provide a long-term financial plan for these projects, it is clear that significant resources will be required. It is anticipated that a number of projects in the long-term program will be supported through university fund raising and user fees, as well as from State and federal funds. Support for others will result, at least in part, from partnerships between the public and private sectors and members of the Newark higher education

Figure 15.1



community. Specific financial plans for each project will be developed as the long-term program evolves.

A brief description of the long-term projects is included in the 1990 Facilities Master Plan. The priority of the projects and the timetable for implementation ultimately will reflect changing university needs and available resources.

Maintenance of Facilities

The university has established programs and systems to ensure that routine maintenance is appropriately scheduled and implemented. There is also a program of Capital Renewal and Replacement. NJIT has received an allocation of \$2.4 million from the 1988 New Jersey Jobs, Education and Competitiveness Bond Issue to complete a number of major upgrading and repair projects. In addition, the university has been developing an array of computer-based systems to assist in facilities management.

The Maintenance Management Information System, fully operational for about a year, provides preventive maintenance scheduling for all mechanical and electrical equipment and control systems on campus. An electronic work order response module, being tested in several departments, allows the electronic entry of work orders and supplies the work order originator with periodic status reports. The facilities inventory is a new prototype application designed to track all facilities information required for efficient planning and operation of the campus environment. It is anticipated that all telecommunication, special services, departmental and use-code information, individual room areas and major contents, and personnel campus address information will become an integral part of the relational database system. Finally, computer drawings of all campus buildings, presently on disk, are in the process of being transferred to a campus network CADD environment. The goal is to link the campus drawings to the campus facilities management database.

Waste Management

The NJIT waste management program includes extensive recycling. The university continues to expand the program, with a goal of recycling 60% of its waste products by 1995 as mandated by the State of New Jersey.

Current policy dictates that all researchers collect laboratory waste in appropriate receptacles and maintain a log. Waste disposal must occur within ninety days. All manifests and reports are kept in the office of the Director of Health and Safety. Given the addition of the Centers for Environmental Engineering and Science, Microelectronics, and Information Technologies, as well as medical waste, NJIT's storage system is reviewed frequently to determine its adequacy, with upgrades made as necessary. Continuous review of environmental conditions has also led to remedial action, e.g. duct cleaning and asbestos removal or encapsulation. The university provides training in the handling of hazardous materials, assigns personnel specifically to monitor their use and disposal, and has the capability to respond to emergencies associated with their handling.

Energy Management and Conservation

During the past eight years, two State funded comprehensive energy audits covering all campus buildings were conducted. Each, about four years apart, identified potential energy saving projects. NJIT has received Energy Grants under the Energy Conservation Bond Program and spent more than half a million dollars on various projects. The largest was the installation of an Energy Management System in four buildings. Recently, additional funding was provided by the New Jersey State Department of Energy to expand the system to nine additional buildings, covering the entire campus. These efforts have resulted in energy savings of more than \$425,000 in FY 90 and 91 alone. In addition, NJIT, Rutgers and St. Michael's Hospital have formed a consortium to evaluate potential energy savings programs for implementation at each institution.