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PUBLIC AND COMMUNITY SERVICE

Introduction

Public Service is woven throughout the fabric of the university, appearing in virtually every area of activity. It is reflected in the array of students served and the kinds of instructional programs and support services provided to them. It is central to the university's focus on applied research and the recent growth in technology transfer programs. It is further evidenced in NJIT's strong emphasis on economic development in recent years.

To be an urban institution is to play an active role in the life of the community. In the summer of 1991, Newark twice received national recognition for its remarkable progress. The City has clearly been experiencing a renaissance in recent years. It has come far, but its needs are still great. The majority of its citizens live in poverty, the school system is rife with problems, and the incidence of drug abuse and AIDS rank among the worst in the country. NJIT provides special academic and support programs for many of Newark's educationally and economically disadvantaged students; serves the economic development needs of the city through business assistance programs, training initiatives, and job creation efforts; participates in the activities of many community development and service organizations; and contributes in significant ways to Newark's physical revitalization, often in collaboration with the city's other public colleges and universities.

To be a public institution is to understand the potential connections between the university's mission and the State's economy and to support and promote that relationship.

Research projects at NJIT are focused in large measure on the analysis and solution of problems affecting the quality of life and economic base of the State. Two prime examples are the large programs in environmental engineering and science and in manufacturing competitiveness.

The pivotal role of public service in the university's mission was evident in the response to the 1985 Governor's Challenge. Three of the nine five-year goals were related directly to public service: a focus on pre-college programs intended to maintain NJIT's position of leadership in providing academic programs to urban elementary and secondary school students and teachers; an urban development initiative intended to support local planning activities; and a focus on the enrollment of minority students intended to continue to build on NJIT's already excellent record of access for underrepresented student populations. All were fully realized within the five-year timeframe, and the horizons have continued to expand.

The reasons for NJIT's commitment to service are complex. The imperatives do not derive exclusively from a desire to do good, admittedly a compelling reason in itself. They also serve NJIT's interests and the interests of the university's many constituencies, including the City. Educating disadvantaged populations serves the needs of Workforce 2000. Contributing to Newark's rebirth will likely lead to more positive perceptions of NJIT's location. Engaging in targeted applied research activities can improve the quality of life for all New Jersey citizens. And indeed, all of these activities enhance the reputation of NJIT.

Increasingly, the university is recognized for its work in these areas and is called upon extensively for its expertise. The validity of NJIT's service efforts is confirmed by large federal grants in recent years to support NJIT's pre-college and business assistance programs, invitations to serve on Governor's and Mayor's advisory panels, and the rapid development of the University Heights neighborhood. The annotated list on the following pages, while not exhaustive, offers some indication of the extent of NJIT's commitment to public and community service and economic development. (see Exhibit 1) The symbols denote areas of service; many of the activities fall into more than one area.

The summary and analysis that follow focus on three key areas of public service activity at NJIT: pre-college programs, economic development, and the NJIT Service Corps and related activities.

Pre-College Programs

Pre-college programs were initiated at NJIT more than twenty years ago with just twenty students. Today, the Center for Pre-College Programs serves more than 3,000 students and their teachers annually. Most of the students are from Newark and its environs. Many are from educationally and economically disadvantaged backgrounds. Thirty programs are offered during the school day, after school and in the summer. The student programs are designed to raise aspirations, enrich backgrounds in science and mathematics, and provide counseling, support, and motivation that will encourage pursuit of careers in engineering, science and technology. They focus on urban engineering, chemistry, mathematics, computer science and marine biology, and are designed to develop communications, critical thinking and problem solving skills. The programs also include mentoring, field trips, and parent programs, as well as access to university faculty and facilities. (See Appendix 8)

The responsibilities of the Center are to coordinate those programs at NJIT which serve

elementary and secondary school students, to provide leadership in the assessment of existing programs and the planning and development of new ones, and to ensure that adequate resources are available to support the programs. In 1984, the Center pioneered programs at the elementary school level, making NJIT one of the first higher education institutions in the nation to do so. One of the most recent innovations is the assignment of NJIT minority graduate students to work with elementary school teachers in their classrooms within the framework of the established curriculum. Under the supervision of university faculty, these students help the teachers integrate hands-on science experiences into the students' learning process.

Follow-up studies of some of the most intensive pre-college programs testify to the Center's success. Approximately 80% of the participants attend college and more than 70% of these pursue engineering and other science-based careers. About 25% of the college-goers attend NJIT. Funding for the pre-college programs comes from corporations, foundations, state government and, recently, from several major federal grants.

Immediate challenges to the Center include expansion of the data collection activities to include the elementary school programs, extending the continuum of pre-college programs to even lower grades and development of a school-college mentoring system that will involve NJIT students from backgrounds comparable to the pre-college program participants. The intent of the last initiative would be to create a universitywide broad-based support system for pre-college students, using student groups such as the National Society of Black Engineers and the Hispanic Organization of Students.

There is also a need for national dissemination of the results of successful programs so that they might be widely replicated. Given NJIT's extensive experience, a Center for Science Education based at the university might serve as a national laboratory for such activities, engaging in research, support, and assessment

Exhibit 1



economic competitiveness



infrastructure



quality of life



services to handicapped



economic development



community development



small business development and growth



energy conservation



workforce training/retraining



the environment



educational opportunity



transportation



affordable housing



Newark renaissance



non-profit and government



NJIT is actively involved in the Newark Collaboration Group, comprising the leadership of approximately 200 organizations dedicated to the development of a shared vision of Newark's future including housing and redevelopment issues.



CHEN (Council for Higher Education in Newark) has developed a comprehensive plan for the University Heights area surrounding the institutions. This initiative was undertaken with full community input and addresses such concern as housing, commercial development and educational needs.



NJIT as part of CHEN has participated in a school/college collaboration, the Newark Education Consortium, that provides a range of pre-college activities for at-risk students in Newark.

NJIT exercises a leadership role in other Newark service organizations such as:



- a. Renaissance Newark
- b. Washington Commons Development Corporation
- c. Mayor's Task Force on the James Street Commons
- d. Mayor's Task Force on the Performing Arts Center



The Urban Engineering Program introduces high school students to the engineering approach to urban problem solving and deals with the challenges affecting the quality of life in urban areas. The program includes projects in which the students work with faculty members on specific urban problems. The instruction includes lecture/discussion, laboratory activities, seminars and field trips. A counseling component is provided for discussion of career opportunities in engineering and science, as well as information on college admission and financial aid.



The Newark Scholars and BETAA Scholars Programs identify and recruit Newark high school graduates, offering them financial assistance and special support programs.



The ChIME (Chemical Industry Minority Engineering) Program introduces high school students to the excitement of science and engineering, and encourages them to undertake the proper high school preparation for chemical engineering and other technological careers.



The Network for Excellence in Teaching Science (NETS) assists Newark teachers from kindergarten through eighth grades to enhance science curriculum.



Jersey Coast Explorers - affiliated with the New Jersey Marine Science Consortium - assists Newark seventh graders to learn about marine biology.



FEMME (Females in Engineering: Methods, Motivation and Experience) features practicing female engineers and scientists and introduces young women (9th graders) to the promise of these careers. The program includes tours, lab experience and problem solving in chemistry, biomedical engineering, energy, computers, and the environment.



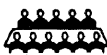
SMED (Science and Mathematics Enrichment for the Disabled) emphasizes science and mathematical knowledge for severely disabled, highly motivated pre-college students. The goal is to enhance their mathematics and science background, and to encourage college and careers in technical fields.



Energy In-Service Workshops are co-sponsored by NJIT and PSE&G to help Newark teachers incorporate energy concepts into the curriculum.



The Interactive Environmental Science Program aids Newark high school teachers and students in gaining a greater understanding of how the environment and mankind interact.



The Precision Manufacturing Institute trains new and existing workers in the metal working industry.



The Procurement Technical Assistance Center aids small New Jersey firms to obtain U.S. Department of Defense and other federal contracts.



The Technology Extension Center (TExCENTER) in Information Services provide low cost assistance in computer applications to small businesses and non-profits.



The Center for Information Age Technology provides computer related assistance to government, education, and non-profit organizations in the State.



The Center for Manufacturing Systems Technology Extension Program transfers manufacturing and industrial engineering technology to New Jersey industry.



The Center for Information Age Technology assists New Jersey Commission for the Blind and Visually Impaired in identifying computer tools that will allow visually impaired individuals to get or retain employment.



The Enterprise Development Center is a small business incubator that assists technology-based new firms to grow by providing space, common services and equipment at low cost.



The Consortium for CAD/CAM Robotics assists companies to take advantage of robotics technology.



NJIT plays a leadership role with statewide Small Business Assistance Organizations such as:

- a. New Jersey Small Business Development Center
- b. New Jersey Entrepreneurs' Forum



The New Jersey Technical Assistance Program for Industrial Pollution Prevention provides free technical assistance to New Jersey small firms seeking to reduce or eliminate waste and cope with the ever rising costs associated with its disposal, regulatory compliance, liability and environmental impact.



The Architecture and Building Science Group, School of Architecture, conducts research on a range of issues focused on how to increase the supply of low cost housing through innovative approaches to design, technology and planning.



The School of Architecture conducts research funded by the Department of Community Affairs on housing production and how to improve the effectiveness of the subsidy program for low and moderate income housing.



The School of Architecture conducts research for FmHA on how to develop self-help programs for housing rehabilitation.



The Architecture and Building Science Group seeks to develop strategies for technical assistance resources in the State to build the capacity of non-profit housing developers.



NJIT is represented on the Trustees and Editorial Boards of Housing New Jersey, published by NJIT. The publication serves as an information source on affordable housing in NJ and as a forum for discussion of housing issues.



NJIT is represented on the Board of Trustees - Monarch Housing Corporation, a newly formed nonprofit subsidiary of Mental Health Associates of NJ to develop housing for persons with mental illness, to help them live independently.



NJIT participates in local civic initiatives such as the Rental Housing Work Group and the LISC Rental Housing Demonstration Program Task Force.



The Division of Continuing Education administers the Community Development Planning Institute, funded by the Department of Community Affairs, which upgrades the technical and management skills of nonprofit housing developers.



The Housing Fellows Program of the Division of Career Services places graduate students as interns with nonprofit housing development organizations, to provide technical assistance and to prepare students for professions in this field.



School of Architecture Faculty consult on design problems in response to specific requests, such as the master plan for Greystone Hospital, and urban design to support downtown revitalization in East Orange.



The Center for Technology Studies develops projects on environmental issues. In cooperation with the American Society for Environmental History, they publish an international quarterly journal, Environmental History Review. Their Visiting Scholars program brings nationally recognized experts to NJ to discuss topics such as ocean pollution, biotechnology and food production, and urban infrastructure.



NJIT Presents is an occasional television series. The first program, "The Garden State Garbage Crisis," won an award for cable television programming excellence.



The Center for Transportation Studies has provided technical assistance to the NJ Department of Transportation, the NJ Office of Highway Safety, the NJ Commission on Business Efficiency of the Public Schools, the Port Authority of NY and NJ, and the Growth Connection study group in Greater Newark.



The NJIT Service Corps encourages student, faculty, and staff participation in a variety of community service learning programs and cocurricular volunteer activities that foster societal understanding and personal and professional development.

efforts and sharing knowledge through a variety of media. It is envisioned as a living laboratory, concentrating its efforts on underrepresented populations and emphasizing ongoing teacher development efforts. Several working models of innovative science pedagogy are in the experimental and first evaluation stages. The proposed Center could become part of a documentation and evaluation effort of national scope. Potential funding sources are presently being explored.

A related pre-college effort is a State-funded interinstitutional program established in 1986 specifically for Newark students. The Consortium for Pre-College Education in Newark is an agreement between the three public universities in Newark and the Newark Board of Education to provide pre-college programs to students in grades seven through twelve. Its annual enrollment is approximately eight hundred students identified as "high risk." Their academic performance is marginal, their need for support and motivation considerable. The Consortium offers a six-week comprehensive summer academic program for ninth to twelfth graders and a thirty-week after school and Saturday program for seventh to twelfth graders. Program focus is on science and math skill development, written and oral communication, counseling and leadership development. In addition, each university highlights different disciplines in their campus programs. Of the first graduating class of 82 students, 53 were admitted to and enrolled in college.

A close relationship between the Consortium and the Educational Opportunity Fund programs should be of value for program participants who plan to attend higher education institutions in Newark. The goal would be the early identification and support of such students, thereby easing their transition to college. Greater focus on the mentoring component of the program is also envisioned, initiating new approaches such as group mentoring for younger students and intensified support for ninth graders in their transitional year from elementary to high school (the typical model for Newark where few middle or junior high schools exist).

Economic Development

New Jersey's colleges and universities increasingly are being called upon to help spawn new industries, revitalize old ones, and help create and save jobs, in addition to serving as a source of new ideas and commercial and technical talent. Through the formation and development of market-based, technology oriented firms, NJIT has helped enhance the technical and economic base of the City of Newark and the State of New Jersey. Through relationships with industry, NJIT students, faculty, and staff are also afforded greater opportunities for comprehensive educational, research and employment experiences.

When NJIT established an Office of Economic Development in 1988, and a year later elevated its director to a vice presidency, the university was making a strong statement about the importance of the growing array of activities in this area. The office has responsibility for three initiatives to support small and medium sized businesses and promote job creation in the City of Newark:

- The Enterprise Development Center is a technology-based business incubator that assists firms to start up and grow with the aid of university resources. It houses sixteen small businesses, four of which are minority owned and two of which are owned by women. A second business incubator is now being planned.
- The Procurement Technical Assistance Center is a federally funded program that helps businesses successfully compete for Department of Defense and other federal contracts. It has a base of more than 1,500 companies; in 1991 it helped them to secure more than \$18 million in contracts.
- The Precision Manufacturing Institute offers entry level machine tool training to a disadvantaged urban population with the support of the New Jersey Department of Labor and Private Industry Councils.

The office also works closely with other university small business assistance programs such as those operated by the Center for Manufacturing Systems, the Center for Environmental Engineering and Science, and the Center for Information Age Technology. The transfer of new technologies is an important objective of these programs. Building upon these efforts and the work of the University Patent Committee, the establishment of a technology transfer and licensing office is under consideration. It would provide more systematic coordination of existing efforts to support NJIT people seeking to commercialize their inventions. One possible approach is a joint effort with other universities. The Office of Economic Development is also involved in a number of outreach efforts in Newark, including the Washington Commons Development Corporation and the Urban Movie Corporation. The latter seeks to build a first-run movie theater, the first in Newark's business district in many years.

With the dramatic revitalization of Newark in recent years, the potential for further development continues to grow. NJIT is playing a pivotal role in many of these efforts. Foremost is the design of a University Heights Science Park. This builds upon earlier planning successes in University Heights that have resulted in more than a thousand units of new housing and related commercial development. University Heights is a collaborative effort of the Council for Higher Education in Newark (CHEN) and the community, with strong support from the State and City. A plan for the Science Park, another CHEN effort, has been developed. It envisions more than a million square feet of technology-based activity in close proximity to the universities' resources. The concept has received strong support from the Mayor and key state level administrators.

Office of Public and Community Service

The latest NJIT public service initiative is the formation in 1991 of the Office of Public and Community Service under the auspices of the

Division of Career Development Services. Its mission is to promote civic responsibility through service for all members of the university community, with a special focus on students. It provides service learning programs integrated with course work, as well as paid and volunteer opportunities with public agencies and community-based organizations. It coordinates the NJIT Service Corps, established in 1990 with significant support from the federal Fund for the Improvement of Postsecondary Education. Working with approximately two dozen participating agencies, the Service Corps links students, faculty and staff with an array of community service activities.

One very successful component of the Service Corps is the Housing Fellows Program, which also receives support from the New Jersey Department of Community Affairs. Students are placed in community based non-profit housing organizations to help develop plans, design and initiate affordable housing and related projects. Participants work full-time in the summer and continue their assignments on a part-time basis throughout the academic year. One notable project was the design and construction of a playground for children with AIDS for the New Community Corporation. Based on the success of this pilot effort, implementation of the Fellows Program is being planned in other areas, for example, transportation and environmental protection.

Other efforts underway through this office are a community service option within the federally funded work-study program, with students placed in local and state agencies, and the modification of academic courses to include a community service component. The challenge is to secure support to continue and expand these initiatives.