

Creating A Hub for STEM Education and Research

NJIT's strategic and academic plans call for the enhancement of all campus facilities to accommodate the university's projected 40 percent growth in student enrollment and to continue providing New Jersey with the best-prepared graduates in the STEM disciplines. To achieve these goals, NJIT must expand classroom facilities, and use technology to improve teaching efficiency and provide strong academic support to dramatically raise retention and graduation rates. The development of the Central King Building (CKB) is integral to achieving that goal.

The requested grant will transform the CKB into a state-of-the-art STEM teaching and learning hub and provide technological resources to underpin important university programs in research, instructional, and academic support. It will be critical to achieving the education, research, enrollment and graduation goals of NJIT. The project will also be a critical anchor for community redevelopment in Newark by transforming the building into a visual landmark and an educational destination. The large open spaces on the street and lower levels of this massive building will be a place to observe the "ecosystem" of innovation and invention in science and technology.

■ **The Center for Innovation and Discovery** is designed to support innovative learning programs, will stimulate the exchange of ideas and apply emerging knowledge through hands-on laboratories, design and modeling studios, and interdisciplinary

projects for grades 4-18. The existing auditorium will become a well-equipped space for hosting lectures, presentations and the exchange of ideas, and the upper three floors will serve academic and research functions with state-of-the-art classrooms, well-equipped instructional laboratories, and sophisticated research areas.

■ **The Biological Sciences Education and Research Center** will bring together researchers and students from biology, biomedical engineering, pharmaceutical chemistry, biochemistry, biophysics, and mathematical biology.

■ **Teaching and Learning Centers** that would be housed in the Central King Building will include a Teaching Effectiveness Institute, Math Engagement Center, a Composition Engagement Center, and centers for advising and pre-professional mentoring. These centers will make use of best practices and pedagogy of hands-on, project-based learning, including teams of students and faculty working on solutions to real-world problems.

At a Glance

New Jersey Institute of Technology (NJIT) requests a total grant of \$86,342,923 to modernize and integrate NJIT's Central King Building from the following programs:

- **Building our Future Bond Act** ("GO Bond") \$30,659,497
- **Higher Education Capital Improvement Fund** ("CIF") \$30,000,000
- **Higher Education Facilities Trust Fund** ("HEFT") \$20,000,000
- **Higher Education Technology Infrastructure Fund** ("HETI") \$2,575,524
- **Higher Education Equipment Leasing Fund** ("ELF") \$3,107,902.

In addition to the State bonds, NJIT is positioned to provide:

- **Cash match** \$12,795,356
- **Previously invested** \$21,290,000



Planned Summit Street quad entrance to the Central King building

Supporting New Jersey's Strategic Plan

As the State's science and technology research university, NJIT is uniquely positioned to help the State of New Jersey achieve and advance the goals of the State Strategic Plan: Targeted Economic Growth; Effective Planning for Vibrant Regions; Preservation, Protection, and Enhancement of Critical State Resources; and Tactical Alignment of Government. These goals are integrated into NJIT's own strategic and academic plans.

- **Targeted Economic Growth.**

It is projected that New Jersey will need to fill 269,000 STEM-related jobs by 2018. Historically, NJIT has provided more than a quarter of New Jersey's engineers, and more than 95 percent of the degrees awarded by NJIT fit directly into the targeted industry employment needs of the State. The proposed STEM Hub will support plans to deal with projected increases in NJIT's enrollment to 14,000 students by 2020, including under-represented minorities who are an underutilized resource for the high-tech needs of New Jersey's economy of the future. This project will provide facilities and technology that will enhance education and academic support to maximize retention and graduation rates in the rigorous STEM fields.

- **Regional Innovation Clusters.**

NJIT conducts cutting-edge research to support the Regional Innovation Clusters (RICs) identified in the State Strategic Plan. The plan notes that particular attention should be given to "...the relationship between RICs and the location of higher education institutions..." that leads to private/public partnerships resulting in innovation and economic growth. As a present and future resource for highly qualified engineers and scientists providing the knowledge and talent workers essential to the State's corporations, and as a leader in collaborations with the industries central to the RICs, NJIT will continue to build partnerships for the future economic growth of the State.

The industry cluster of Bio/Pharma and Life Sciences is a crucial component of the



Typical breakout space

STEM Hub project with the Biological Sciences Education and Research Complex being housed in the CKB. Bringing together researchers and students from Biology, Biomedical Engineering, Pharmaceutical Chemistry, Biochemistry, Biophysics, and Mathematical Biology, NJIT expects to produce stunning innovations at the interface of biological sciences and engineering.

- **Effective Planning for Vibrant Regions.**

The transformation of the CKB, beyond contributing substantially to STEM education and research, will anchor the transformation of Newark's University Heights neighborhood. The CKB auditorium, as a component of the STEM Hub, will become a state-of-the-art venue for local, regional, national and international intellectual events.

- **Preservation, Protection, and Enhancement of Critical State Resources**

"Sustainable systems" is one of three major interdisciplinary research focus areas in NJIT's own strategic plan. NJIT's environmental engineers, architects, scientists, and policy experts are working to meet the State's needs for preservation, protection and enhancement of critical resources. The work of the CKB's Biological Sciences Education and Research Complex will include research into New Jersey Urban Ecology and the preservation of the existing biodiversity.

Student resource space in the CKB will provide opportunities for NJIT to showcase and preserve the cultural and intellectual diversity of the university's student, faculty and staff community. It should also be noted that the CKB itself is of historical and cultural value, and this project will maintain the architectural elements that make the building a Newark and New Jersey landmark.

- **Tactical Alignment of Government.**

NJIT will continue to proudly and efficiently align its goals and objectives with those of the State of New Jersey, in full cooperation with the Office of Planning Advocacy (OPA). Furthermore, NJIT's culture of evaluation and assessment can be of vital importance to the OPA and other State agencies and offices in determining the effectiveness of investments and the outcomes of the programs that have local, regional and State relevance.



Restored facade of the Central King Building