

NEW JERSEY INSTITUTE OF TECHNOLOGY



## PERIODIC REVIEW REPORT



JUNE 1, 2017



# **Periodic Review Report**

**Presented by New Jersey Institute of Technology**

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**Previous Decennial Self-Study: 2011-2012**



## Section 1: Executive Summary and NJIT Overview

Since the last Middle States Self-Study, under the auspices of a new president and armed with an ambitious strategic plan, New Jersey Institute of Technology (NJIT) has undergone significant transformations in areas ranging from governance and assessment to research and facilities.

In 2014, the university implemented a comprehensive shared governance system based on a two-senate model. This system brings all major stakeholders—students, instructors, staff and professionals/administrators into the governance structure. The newly formed senates have made significant contributions, including revising the Faculty Handbook after a longstanding impasse. An initial assessment shows that shared governance has been well received and has contributed to improved collegiality and transparency across campus.

The new strategic plan, *2020 Vision* (see Appendix), was developed through a collaborative process involving more than 200 people representing all stakeholder groups of the campus community. Implementation of this plan began in summer 2015 and has moved the university toward a more unified and consistent vision of what it can become and how we will reach our goals. The plan sets forth five priorities: students, learning, scholarly research, community, and investments. Within this framework, it identifies objectives, strategies, and tactics to achieve challenging targets in all areas by 2020. It also sets out a comprehensive framework for assessment to guide continuous improvement.

Financial and enrollment trends at the university have been positive over the past five years, with significant enrollment growth and a markedly higher student profile. In addition to revenue generated by tuition, the university has made dramatic strides in external research funding and fundraising. Finally, the university has benefited from significant state bonding to embark on one of the most significant periods for facility investment in its history. Between 2014-2018, more than \$300 million in new buildings will come online. While achieving this, NJIT has maintained an A+ stand-alone credit rating with Standard and Poor's and an A rating overall, when considering the lower rating for the State of New Jersey.

With the restructuring of evaluation and assessment functions into the Office of Institutional Effectiveness (OIE)—which now includes data management, institutional research, real-time dashboards, assessment, evaluation, planning, and accreditation—NJIT has strengthened the role of data and evaluation in decision-making. Senior administration now has access to critical information and ongoing evaluations of progress toward achieving the goals set out in *2020 Vision*.

The strategic plan was designed based on careful projections of available university resources and serves as a guide for budgeting. With defined resources reserved for plan implementation and a robust budget model tracking trends in all major sources of revenue, the plan guides university investment to promote innovation and growth in all areas. By linking the plan to assessment, NJIT integrates regular evaluations into the budgeting process for programs and initiatives. The university bases funding on both need and performance. Through this process, NJIT seeks to realize its ambition with iterative, assessment-driven, continuous improvement.

## **NJIT's Mission**

NJIT is the state's technological research university, committed to the pursuit of excellence:

- In undergraduate, graduate and continuing professional education, preparing students for productive careers and amplifying their potential for lifelong personal and professional growth.
- In the conduct of research with emphasis on applied, interdisciplinary efforts encompassing architecture and the sciences, including the health sciences, engineering, mathematics, transportation and infrastructure systems, information and communications technologies.
- In contributing to economic development through the state's largest business incubator system, workforce development, joint ventures with government and the business community, and through the development of intellectual property.
- In service to both its urban environment and the broader society of the state and nation by conducting public policy studies, making educational opportunities widely available and initiating community-building projects.

NJIT prepares its graduates for positions of leadership as professionals and as citizens; provides educational opportunities for a broadly diverse student body; responds to the needs of large and small businesses, state and local governmental agencies and civic organizations; partners with educational institutions at all levels to accomplish its mission; and advances the uses of science, technology, engineering and mathematics (STEM) as a means of improving the quality of life.

## **Overview of the Institution**

NJIT serves the citizens of New Jersey as a critical resource for education, scholarly and applied research, and economic development in the fields of science, technology, engineering, and mathematics as well as design and the management of technology. Since its founding, the university has achieved significant milestones: supplying well over 25 percent of the state's engineering workforce; establishing one of the nation's largest incubators for startup technological companies; and developing the world's leading solar telescope at Big Bear, California.

Today, NJIT enrolls over 11,300 students, conducts over \$130 million in research and has hired more than 100 faculty over the past six years. The facilities of NJIT have also developed steadily. In 2013–2014 alone, the university broke ground for more than \$150 million in new laboratories, classrooms, and student-support areas. These new facilities position the university to maintain its leading role in education with a particular focus on biological sciences, engineering, and computing. NJIT students increasingly benefit from these investments. Today, they have access to innovative classrooms with cutting-edge technology and new areas of support, including centralized advising and tutoring.

Chartered by the State of New Jersey in 1881, Newark Technical School opened in 1885 with a class of 88 students. In 1930, under the presidency of Allan R. Cullimore, the school became Newark College of Engineering. The university began offering professional doctoral programs in 1960. By 1973, with the integration of New Jersey School of Architecture, the institution had evolved into a technological university offering a wide range of undergraduate and graduate degrees and was renamed New Jersey Institute of Technology to signify its expanded mission.

As it grew into a research university, NJIT also developed as an educational institution. Today, the university has nearly 2,200 residential undergraduate students with a significant number also living in university-affiliated housing. The average combined SAT score for entering freshmen has increased nearly 300 points in the past 20 years. During the same period, NJIT developed a significant presence as a doctoral institution.

Still, NJIT remains true to its urban mission and its commitment to help motivated and talented students overcome educational challenges. In fall 2014, more than 40 percent of the entering freshman class qualified for Pell grants, and for them, the STEM career focus of NJIT offers a road to success. According to a New York Times report, NJIT leads the nation in the percent of students from the bottom one-fifth of the income distribution who end up in the top three-fifths. About 25 percent of all NJIT bachelor's degree recipients enter graduate programs within six months of receiving their degrees. NJIT students also enjoy mid-career salaries that place them among graduates of the top four public research universities in the country.

In addition to Newark College of Engineering, NJIT now includes the College of Science and Liberal Arts (1982), Martin Tuchman School of Management (1988), Albert Dorman Honors College (1994), and Ying Wu College of Computing (2001). In 2008, with the addition of the School of Art + Design, New Jersey School of Architecture was expanded to become the College of Architecture and Design.

*Table 1.1 NJIT Enrollment by School*

NEW JERSEY INSTITUTE OF TECHNOLOGY - Fall 2016				
School	Undergrad	Grad	Doctoral	Total
College of Architecture and Design	630	33	13	676
College of Science and Liberal Arts	748	146	124	1,018
Martin Tuchman School of Management	388	239	5	632
Newark College of Engineering	4,071	1,189	215	5,475
Non-Matriculated	877	75	-	952
Ying Wu College of Computing	1,497	999	68	2,564
<b>Grand Total</b>	<b>8,211</b>	<b>2,681</b>	<b>425</b>	<b>11,317</b>

Like NJIT, the City of Newark is on a trajectory of growth as a center for commerce, finance, and transportation. It is also a focal point for higher education, with NJIT adjacent to three college campuses. Essex County College is an important feeder for NJIT's STEM programs, providing reciprocal benefits for both institutions. Rutgers-Newark and Rutgers Health and Biological Sciences are NJIT's natural partners in education and research. These schools serve a total of more than 50,000 students, staff, and faculty. Together, they constitute a critical engine for the generation of knowledge and economic growth for the city and state.

## **Preparing the Periodic Review Report (PRR)**

The NJIT approach to the PRR has been a continuation of the planning and self-study model adopted for *2020 Vision: A Strategic Plan for NJIT*. The leadership team from the *2020 Vision* Steering Committee also serves on the committee overseeing the PRR. The team includes the president and vice president of the faculty council, the provost, the deans, and the director of planning and accreditation. In addition to this team, two faculty members were nominated to serve on each section sub-committee, joining at least two operational staff members with direct knowledge of the area. Each section sub-committee chair invited the participation of additional members of the university community as needed to compile a comprehensive understanding of the material and write draft sections of the PRR. The sub-committees each produced multiple drafts of their assigned sections which were reviewed by the full committee. By the end of December 2016, all base data was frozen, and the sub-committees provided final drafts to the provost. These were collected into a single narrative document and returned to the sub-committee chairs and the provost. After revisions, this group shared a final draft with the university president and all members of senior staff. The Board of Trustees reviewed the final version and approved it for posting on the NJIT accreditation website.

## Section 2: Response to Recommendations

### Introduction

The April 2012 Middle States Evaluation Team Report to NJIT concluded that NJIT meets or exceeds all 14 standards outlined in the Characteristics of Excellence in Higher Education. The team wrote:

“The New Jersey Institute of Technology is making a disproportionate impact in higher education given its means. In particular, NJIT is providing an admirable service to first-in-family students attending college. The students are excellent, well trained, and graduates are highly successful after leaving the university. NJIT’s success in providing a first-class education and college experience to a diverse student body is enviable.”

They did, however, offer one recommendation: *“The University submit to the Commission a functioning plan for shared governance, adopted by consensus of the faculty, the president and Board of Trustees.”*

In addition to the recommendation, the Middle States Evaluation Team suggested that the university give special attention to six areas:

- Faculty development
- Women and underrepresented groups
- Outreach
- Institutional assessment
- Student recruitment
- Student life

This chapter will address the shared governance recommendation and provide an update on activities focused on the other areas suggested for special attention.

### Shared Governance

The Middle States 2012 evaluation recommended that NJIT complete the in-progress effort to re-design the shared governance structure at the university and submit to the Commission a functioning plan for shared governance adopted by a consensus of the faculty, the president and Board of Trustees. NJIT has completed this redesign and implemented the new shared governance model. The report to the Middle States Commission was submitted accordingly (see Appendix for Policy on Shared Governance).

#### *Description of the NJIT shared governance model:*

The NJIT shared governance model is a Two-Senate Model with a Faculty Senate and a University Senate: a Faculty Senate to oversee faculty and academic business, and a university Senate to oversee other aspects of university business. Each senate is to have the following:

- President and vice president
- Five-person executive committee (including president and vice president)
- *Standing committees* with members drawn from all constituencies in the university
- Ad hoc committees, as needed
- Open meetings

The shared governance model will also have a *Joint Coordinating Committee*, consisting of the Executive Committees of the two senates, to coordinate the flow of work and information between the two senates.

*Existing governance bodies* were modified or in some cases abolished (e.g., Faculty Council, Committee on Academic Affairs, and Administrative Affairs Council) based upon the new governance model.

A set of six documents was created to serve as the founding documents for this new system of governance: By-Laws of the University Senate, Constitution of the University Senate, By-Laws of the Faculty Senate, Constitution of the Faculty Senate, Policy on Shared Governance, and Faculty Roles, Rights, and Responsibilities (see Appendix).

The Constitution of the University Senate defines the eight stakeholder groups:

*Faculty:* “The Faculty consists of all full-time positions with the tenure-track ranks of Assistant Professor, Associate Professor, Professor, and Distinguished Professor.” (NJIT Faculty Handbook, Section 2.2.1) The will of the faculty shall be expressed through faculty meetings and the representative body of the faculty, the Faculty Senate, as defined in the Constitution and Bylaws of the Faculty Senate.

*Lecturers and Educators Congress:* The Lecturers and Educators Congress (LEC) is the representative body for designated categories of instructional staff (as defined in the Faculty Handbook). It also represents others the LEC Constitution identifies as members, including lecturers, adjunct instructors, research professors, post-doctoral scholars/fellows, and professional librarians with teaching responsibilities.

*Administrators Council:* The Administrators Council represents members of the university workforce at or above the level of director but below the level of vice president.

*Staff Council:* The Staff Council represents members of the university workforce below the level of director.

*Student Senate:* The Student Senate represents the full-time and part-time undergraduate students in the university.

*Graduate Student Association:* The Graduate Student Association represents the interests of all graduate students in the university.

*Alumni Association:* The Office of Alumni Relations/Alumni Association oversees all of NJIT’s alumni organizations and programs.

*Senior Staff:* The Senior Staff currently consists of the provost and senior executive vice president, the senior vice president for university advancement, the senior vice president for technology and business development, the vice president for academic support and student affairs, the senior vice president for finance and chief financial officer, the vice president for human resources, the senior vice president for real estate development and capital operations, the academic deans (i.e., the deans of the university's colleges and schools) and the university's general counsel and vice president for legal affairs.

### **Achievements Since the Inception of Shared Governance**

Shared governance has ushered in a new era of cooperation and productivity at NJIT. The transformation has engendered improved communication and transparency, a formal structure for addressing issues as they arise, increased participation by all stakeholders, and increased efficiency.

The new shared governance system has also increased communication and cooperation across campus, particularly between faculty and administration. The Faculty Senate leadership meets with the provost monthly to discuss current issues and initiatives. The provost, the deans, the vice president for academic support and student affairs, the senior vice president for finance and chief financial officer as well as other administrators, are non-voting members of the Faculty Senate and have contributed substantially to discussions of policy that arise there. Of the eight standing committees of the Faculty Senate, five are chaired or co-chaired by administrators. Stakeholders from across the university are members of the University Senate as well.

A direct result of increased opportunities for participation by faculty and others in decision-making at the university is increased engagement. Efficiency has also improved through a representational system where most, but not all, of the authority of the faculty is delegated to the Faculty Senate, with only the most important matters being considered by the full Faculty.

### *Accomplishments by the Faculty and Faculty Senate under Shared Governance*

In the three academic years since the inception of shared governance at NJIT, the new framework has proven highly productive. The Faculty Senate, and the full faculty where necessary, have recommended all of the accomplishments, described below, to the university administration and the Board of Trustees has approved them.

An external consultant hired by the Board of Trustees recommended reorganizing and streamlining the Faculty Handbook and revising several university policies to reflect best practices at other universities.

## *Streamlining and Reorganizing the Faculty Handbook*

During the first two years of shared governance, the Faculty Senate undertook a major effort to reorganize and streamline the Faculty Handbook – the bylaws of the faculty and the primary document describing the rights and responsibilities of the faculty. This process culminated in the approval of a fully revised handbook by the faculty and the Board of Trustees (see Appendix for revised Faculty Handbook).

Changes to the handbook addressed major challenges. Some had been at an impasse including the following:

- *Promotion and Tenure Policy* – The Faculty Senate revised the promotion and tenure policy by expanding department promotion and tenure committees to include tenured associate professors and to eliminate the “two-shots” at tenure rule. An additional change now allows deans to recommend or not recommend a candidate for tenure.
- *Sabbatical Leave Policy* – The section on sabbatical leaves was substantially revised to make the policy clearer, more transparent, more detailed, and paperless.
- *Membership in the Faculty* – Revisions established for the first time that administrators who hold faculty rank are members of the faculty and defined certain administrative positions that entitle their occupants to voting rights at faculty meetings, even if they are not members of the faculty.
- *Professors Emeriti* – Changes set the primary criterion for awarding emeritus status to retired faculty from the longevity of service to service “with distinction”. It also established an appeal process for retired faculty not awarded emeritus status.
- *Joint Appointments* – Revisions clarify various aspects of joint appointments, including that “Faculty members with joint appointments do not have voting rights in departments or academic units in which they have secondary affiliations unless the department bylaws specify they do.”
- *Department Bylaws* – The section on policies and procedures concerning department bylaws establishes that customized department bylaws must follow the format of the default department bylaws, and may be revised, by the provost and Faculty Senate in concert.
- *Selection and Appointment of Department Chairpersons* – Significant revisions were made to the procedures for selecting department chairpersons, including the elimination of referenda for incumbent chairpersons.
- *Faculty Development* – This section addresses academic freedom, maintenance of research facilities, research support, and mentoring of junior faculty for careers as researchers.

In addition to Faculty Handbook revisions, the Faculty Senate undertook numerous activities in consultation with the administration and other stakeholders. Among them are the following:

- *Faculty Search and Selection Guidelines* – In fall 2016, the Faculty Senate and provost approved new Faculty Search and Selection Guidelines to foster recruitment of diverse faculty.

- *Default Department Bylaws* – The Faculty Senate and provost approved new default department bylaws. The bylaws are sufficient to guide the operation of departments, and also serve as a guide to departments that wish to adopt customized bylaws.
- *Miscellaneous Academic Initiatives Under Shared Governance* – Other initiatives undertaken by the Faculty Senate include: a new policy on student evaluations of teaching effectiveness; a new grade appeal policy; a revision of course scheduling process with input from faculty, staff, and administration; various new surveys of stakeholders about shared governance; and implementation of the strategic plan *2020 Vision*.

### *Ongoing Development of the Shared Governance Framework*

*Faculty Evaluations of Administrators* – The current Faculty Handbook calls for periodic evaluation of various administrators by the faculty. The Faculty Senate recommended a new policy to the administration.

*Search and Selection Procedures for the University President* – The Faculty Handbook currently defines search and selection procedures for the university president. The Board of Trustees' external consultant recommended that instead of the Faculty Handbook, the bylaws of the Board of Trustees define the presidential search process (see Appendix).

### *University Senate Accomplishments*

The University Senate has achieved improved communication across campus on areas relating to the welfare and improvement of the university exclusive of academic and faculty matters. Areas that the University Senate has worked on include:

- Financial process improvement flows
- Employee recruitment and onboarding
- Facilities upgrades
- University website upgrades
- Communications enhancements
- Student satisfaction

### **Initial Assessment of Shared Governance**

In May 2016 retiring Faculty Senate president Richard Sher reported:

*"This year the Faculty Senate accomplished a great deal. Our biggest achievement was the completion of a two-year project to streamline and reorganize the Faculty Handbook... approximately one-third the size of the [previous] version. ..."*

*I wish to thank the four other members of the Faculty Senate's Executive Committee; ...all the voting and non-voting members of Faculty Senate; those who have served on, and especially chaired, the senate's standing committees; and Provost Deek, President Bloom, and the Board*

*of Trustees, who have consistently demonstrated their support for the new system of shared governance.”*

The university community has welcomed shared governance. Particularly among the faculty, the level of discomfiture with governance and decision-making is markedly lower. Selected interviews with faculty suggest that the new Faculty Senate has been well received and is working effectively to represent them. Among other groups, shared governance is new and appreciated. Actual participation in the shared governance system among non-instructional groups, however, has grown slowly. To verify these impressions and identify areas in need of improvement, satisfaction with shared governance was assessed through surveys of key stakeholders in March through September 2016. These included separate surveys for each of the following groups:

- Faculty
- Lecturers
- Adjuncts
- Professional Staff
- Other Staff

Using questions based on a published American Association of University Professors (AAUP) survey about shared governance, the survey addresses the seven key indicators identified by AAUP:

1. Climate for governance
2. Institutional communication
3. Board’s role
4. President’s role
5. Faculty’s role
6. Joint decision-making
7. Structural arrangements for governance

The survey adopted a different set of comparisons for instructional and non-instructional groups. Each instructional group reported their satisfaction with aspects of shared governance and the overall process comparing the current system to the prior one. Staff groups were asked to rate the components of the current system and the system overall.

Survey results underscore the importance of the change and attest to the general success of the new shared governance process, for faculty in particular. Perhaps the most important result is the change in the perception of collegiality on campus. Under the prior governance system, more than 35% of faculty disagreed with the statement that a respectful and collegial climate existed on campus. Under the new system, only about 11% disagreed with that statement. Overall, tenured/tenure-track faculty are more satisfied with the current system than the previous one, on every one of the seven AAUP indicators. Among other instructional groups, satisfaction is less clear. The lecturers reported higher satisfaction on most measures. Responses of adjuncts, however, suggest they are less satisfied with the current system than the previous one on 10 of 13 indicators. This result is difficult to interpret because when asked about satisfaction with shared governance overall, every instructional group, including adjuncts,

reported at least 25% more satisfaction than dissatisfaction with the current shared governance system.

Without a prior system for comparison, the satisfaction of staff groups is difficult to interpret. It is noteworthy that professional staff are generally more satisfied than dissatisfied with the current system, with responses differing by at least 30%, usually 40%-50% on every AAUP indicator. Staff members are less satisfied overall, but still report higher satisfaction than dissatisfaction by at least 10% on every component related to shared governance.

Despite the positive outcomes, room for improvement remains. In the areas of joint responsibility for decision-making in budgeting and physical facilities, faculty see themselves as more dissatisfied than satisfied. (They express higher satisfaction regarding their role in strategic planning.) Lecturers and adjuncts express higher satisfaction with their roles in overall university decision-making.

In response to these observations, efforts to integrate the faculty into the decision-making process have led to more routine presentations about budgeting and facilities development. These presentations include opportunities for questions and open discussion. Shared governance has also integrated the faculty into the process through broader inclusion in planning, budgeting, facilities, and research committees.

All staff groups are more satisfied than dissatisfied by at least 20% with their roles in decision-making at the university. However, room for improvement remains. Both professional and line staff express some dissatisfaction with opportunities for professional development. This issue warrants discussion moving forward. It will also be important to improve communications about the activities of the University Senate and its component units to more fully involve the university staff.

## Suggestions

In the Report to the Faculty, Administration, Trustees, and Students, the Middle States Evaluation Team offered suggestions to address six additional areas.

### *Faculty Development*

NJIT was encouraged to take advantage of the opportunity to increase and strengthen its tenure-track faculty base in light of expected faculty retirements. The NJIT strategic plan made faculty hiring a critical priority, and the university has made remarkable progress. Over the past five years, NJIT has recruited 89 new tenured and tenure-track faculty, increasing the total faculty by nearly 10%. The women and men who joined NJIT to serve a growing student body bring expertise spanning diverse academic fields, including advanced manufacturing, architecture design and construction, big data, biochemistry, business systems, material science and engineering, and sensing and control.

### *Women and Underrepresented Groups*

NJIT values diversity and is striving to expand the representation of women and minorities in its faculty ranks. This pursuit of diversity is not merely idealistic; it is pragmatic because diversity drives excellence. (See Appendix, Figure 2.1 for Diversity in Faculty Hiring.)

NJIT has responded to this challenge by pledging in *2020 Vision: A Strategic Plan for NJIT* to achieve a meaningful increase in the number of women and underrepresented minority-tenured and tenure-track faculty over the next five years. *2020 Vision* lists a set of specific tactics to increase faculty diversity, and committees have been formed to implement these tactics through changes in advertising and recruitment practices. College diversity liaisons have also been appointed and trained to promote diversity in hiring. (See Appendix for Tactics to Promote Faculty Diversity).

### *Outreach*

NJIT was encouraged by the Middle States Commission to continue its pursuit of corporate, government (federal, state, and city), and academic partnerships to drive innovation and economic development. In this regard, NJIT was designated, in 2015, as an Innovation and Economic Prosperity (IEP) University by the Association of Public and Land-grant Universities (APLU).

Two significant developments occurred in 2014 to further strengthen outreach and economic engagement:

1. Launch of the New Jersey Innovation Institute (NJII)—NJII was launched in April 2014 as an NJIT nonprofit corporation to accelerate the university's applied and commercially oriented research and economic development agenda. NJII will connect academicians, business and government to address industry challenges and to position NJIT as a leader among universities in supporting innovative economic development and job creation.

2. Creation of the NJIT Business Engagement Team (BET)—BET includes senior-level NJIT officials selected for their collective institutional knowledge and ongoing business interactions with the public/private sectors. The BET serves as the university's centralized coordinating entity for economic engagement and works to integrate activities and respond to external stakeholder needs locally and regionally. The BET expanded when NJIT received APLU IEP designation.

President Bloom also chairs the University Heights Science and Technology Park organization that is committed to collaboration with neighboring institutions to foster the creation of an educational, research, and economic development ecosystem in the City of Newark. These efforts have paid off, as a major French pharmaceutical research and life sciences firm, Biotrials, recently announced its commitment to establish its North American facility in Science and Technology Park.

### *Institutional Assessment*

Middle States recognized the strong data-gathering capabilities of NJIT and encouraged the university to strengthen institutional assessment practices focusing on data-informed decision-making in strategic planning and annual progress reviews. Over the past year, the offices of Assessment and Institutional Research have been combined into the Office of Institutional Effectiveness (OIE) and significantly strengthened. With additional positions and an expanded mission to assess student learning outcomes and institutional effectiveness university-wide, OIE coordinates assessment and provides information critical for decision-making to senior administration. (See Section 5 for a detailed description of the activities of OIE. See also Section 6 for a description of the link between assessment and strategic planning.)

### *Student Recruitment*

The university is encouraged to consider increasing the number of international and out-of-state undergraduate students. Such efforts could increase revenues, improve student quality and success rates, and extend the use of proven NJIT approaches to providing opportunities to underrepresented minority students nationally.

Over the past three years, NJIT has methodically increased its student recruitment outreach to out-of-state and international students. Below is a summary of initiatives aimed at boosting national and international brand recognition among prospective students:

- Beginning in 2014, NJIT sent admission representatives overseas to attend international recruitment fairs and visit targeted universities. The countries visited included NJIT's traditional international markets: India and China, and newly targeted markets in South America and Asia.
- NJIT has aggressively pursued and signed contracts with more than 20 international student recruitment agencies. These international student recruitment agencies are located throughout the world and will provide the necessary assistance to attract more students and diversify NJIT's international outreach.

- NJIT reviewed its student recruitment process and focused its attention on expanding out-of-state and international student inquiries through the purchase of additional student leads from various sources.

### *Student Life / Engagement*

Middle States encouraged NJIT to continue to develop its unique approach to student life, providing a hybrid model that brings high-quality student life and extra curricular experiences to both resident and commuter students. Under the leadership of the dean of students and associate vice president for student engagement, there has been a significant effort to create ongoing opportunities to connect students to the university. In doing so, the units within Student Engagement aim to foster academic success and personal growth by encouraging students to take part in a variety of initiatives that promote unity, awareness and university spirit.

The Office of the Dean of Students places special emphasis on developing effective learning communities for all entering freshmen. Over the past five years, guided by annual assessment, the university has enhanced and expanded the learning community model. Now, the university assigns freshmen upper-division peer mentors from the same major. The peer mentors support cohort members by connecting them to the department and college. They also coordinate academic and social events to engage first-year students and help them succeed.

Each spring semester, first-year students participate in the learning community showcase. Instructors and mentors guide students in their individual research or studio projects. Top students from each cohort are invited to showcase their research and compete for prizes at the annual learning community freshman showcase.

### *Campus Life*

The Office of Campus Life was established in December 2015 through an organizational restructuring designed to foster an engaging, safe and welcoming environment that supports opportunities for involvement in intellectual and social communities, encourages social responsibility and promotes student life at the institution. Under the new organizational structure, the department focuses on enhancing the student experience by creating opportunities for student involvement. The department also identifies and clarifies staff roles and responsibilities, and implements training focused on leadership development, event planning and risk assessment, diversity awareness and appreciation, and transferrable skills. Areas of focus for the Office of Campus Life include the following:

- *Student Involvement*—to promote activities on campus through clubs and other student organizations, particularly music groups and academic competitions
- *Fraternity and Sorority Life*—to promote safe and fulfilling Greek experiences on campus
- *Diversity and Inclusion*—to support and promote tolerance and appreciation for diversity

- *Student Leadership*—develop programs to promote leadership skills among NJIT students
- *Large-Scale Programming*—to support events and activities such as concerts, fairs, and competitions open to the entire university community

Preventing and responding to campus sexual misconduct has dominated the conversation of both college professionals and students across the country. Educating our students to recognize, report, and prevent incidents of sexual misconduct helps to make our campus communities safer for students to live and learn. The Office of the Dean of Students is taking a multipronged approach to engaging students on this important topic. In 2016 the university purchased an online Title IX Training Module, and more than 5,000 students completed the training. Additionally, instructors used the First-year Seminar to educate students on this topic through a series of presentations by experts in the field.



## Section 3: Challenges and Opportunities

### Introduction

Identifying challenges and opportunities is a continuous process. However, the 2014-15 strategic planning project involved the full NJIT community in a deliberative planning effort resulting in *2020 Vision: A Strategic Plan for NJIT*. The project included nearly 200 volunteers organized into five committees. Each committee had representatives from all major campus stakeholders: students, faculty, alumni, staff and administrators. Working together over several months, committee members organized the challenges and opportunities they identified around five priorities.

*Students* are the first priority, NJIT's most important asset, and the university's greatest challenge. Students are a reflection of the university, as they employ the values, attitudes, skills and knowledge they have learned at NJIT. Serving our students challenges NJIT to achieve the highest standard of service. The NJIT community must encourage students to be creative, to take risks and to consider different approaches to applying their expertise to solving problems. Not only must NJIT train students to be experts in their fields, it must also develop them as leaders. To achieve this goal, NJIT recruits and enrolls students with the qualities and interests needed to succeed. NJIT must rise to the challenge of providing students with support for personal development, academic advising and career guidance that will facilitate their successful and timely degree completion.

*Learning* is the second priority, challenging NJIT to achieve the highest standards of education. The university must engage students through skilled instructors delivering a curriculum that is rigorous and relevant. Developing innovative academic programs, guided by continuous self-assessment, is the only way we can respond to the changing demands of industry and needs of society. Inspirational teaching and learning experiences within and outside the curriculum will help the university accomplish these goals, promote inventive thinking, and instill knowledge that serves the public interest. In parallel with formal instruction, NJIT's curriculum must also allow students to acquire talents and learn from experiences outside the classroom.

*Scholarly research*, creative work, and related activities constitute the third strategic priority. This priority is an area of special challenge and opportunity as NJIT grows into its role as a major research university. Developing knowledge and applying it for the benefit of society requires talent, substance, and resources. In renewing the faculty, NJIT must seize the opportunity to recruit actively, develop, support and retain exceptional members of the faculty by providing the environment and preconditions necessary for success from their appointment to the pinnacle of their academic careers. In expanding research, NJIT must also break down barriers to multidisciplinary and multi-institutional collaborations. Toward this end, NJIT must expand key partnerships in business and economic development through the Enterprise Development Center and the New Jersey Innovation Institute.

*Community* is the fourth strategic priority. This priority challenges the university to become a network of engaged learners and knowledgeable professionals. The undergraduate population reflects the diversity of NJIT's environment and represents the future of the workforce. NJIT's faculty is similarly diverse, and this offers the potential to cultivate a strong global presence in research and education. Even so, NJIT seeks greater participation of underrepresented minorities in its faculty and administration; the university will do all that is possible to increase that diversity. More broadly, the university is challenged to foster a stronger sense of community among students and faculty on a campus that has only recently grown into the role of a major research university with a significant on-campus population.

*Investment*, the final priority, offers the greatest range of challenges. NJIT must invest in human capital and university infrastructure to meet the overall goals of *2020 Vision*. Faculty renewal continues to be pressing. Equally important, there is a need for cutting-edge facilities across the board from education and research to athletics, recreation, and entertainment. Recent and current capital projects, such as the residential Albert Dorman Honors College, the Greek Village and the renovation of the landmark Central High School, have set new standards of excellence that must continue. While making investments, NJIT must also contend with limited resources, a shrinking pool of high school graduates in New Jersey and uncertain state funding for higher education.

### **Linking Planning Initiatives to Standards**

*2020 Vision* goes beyond a narrative collection of principles. It offers specific strategies and tactics for implementation in response to challenges and in pursuit of opportunities. The progress made in implementing each of these priorities is detailed in semi-annual reports to the university president and Board of Trustees. (See Appendix for Reporting Schedule and December 2016 Report). Each planning strategy relates to specific accreditation standards.

#### *Students*

- Admissions—To admit the students likely to succeed at NJIT, to graduate in a timely manner and to achieve their potential for leadership. (Standard 8)
- Persistence and Retention—To increase persistence and retention by strengthening support for students. (Standards 8, 9)
- Graduation—To ensure that more NJIT students graduate on time and without administrative obstacles. (Standard 8)
- Campus Quality of Life—To enhance the quality of campus life leading to increased student engagement, satisfaction, and pride. (Standards 8, 9)
- Institutional Effectiveness—To continuously improve student support and the quality of campus life through rigorous and honest self-evaluation. (Standard 7)

### *Learning*

- Curricular Assessment—To assess student learning and use the results for course and program improvement, leading to increased rates of retention and graduation. (Standards 11, 14)
- Curricular Reform—To ensure degree programs meet the needs of students and the employment market. (Standards 11, 12, 14)
- Convergence Through Digital Technology—To embrace digital technology as the transformative learning strategy for the delivery of instruction, giving students control over time, place, path and pace of education. (Standard 2, 11, 13)
- Milestone Experiences—To give every student in good-standing unique, credit-bearing learning opportunities outside of the classroom. (Standards 9, 11, 13)

### *Scholarly Research*

- Faculty Roles in Research—To foster increased faculty participation in scholarly research and creative endeavors with an emphasis on collaboration. (Standards 5, 10)
- Academic Research Enterprise—To strengthen a research organization that supports, facilitates and promotes faculty research success. (Standards 2, 5, 10)
- Multidisciplinary Research—To take a leading research role in three emerging areas of multidisciplinary research: data science and information technology, nexus of life sciences and engineering, and sustainable systems. (Standards 1, 2, 10)
- Economic and Technology Development Partnerships—To innovate and forge business relationships that provide local and state industries with critical technical assistance and support for workforce preparedness and training programs through the New Jersey Innovation Institute and the Enterprise Development Center. (Standards 1, 5)
- Facilities and Administrative Planning—To optimize existing facilities and equipment while developing new infrastructure to support research. (Standards 2, 3, 5)

### *Community*

- Global Community—To support student diversity, foster a global community at NJIT, and improve the university's standing by developing an international presence. (Standards 6, 8, 9, 13)
- University Governance—To promote engagement, respect, and civility among all community stakeholders and integrate them into university governance in a meaningful manner. (Standard 1, 2, 4, 5)
- Diverse Faculty Leadership—To achieve a meaningful increase in the number of women and underrepresented minority tenure and tenure-track faculty, as well as instructors in non-tenure track positions. (Standards 2, 10)
- Diverse Administrative Leadership—To achieve a meaningful increase in the number of women and underrepresented minority administrators. (Standards 4, 5)
- Alumni Engagement—To effectively define and measurably increase positive engagement between NJIT and its alumni. (Standards 13)

### *Investments*

- Educational Investment—To provide the level of educational support that allows for the achievement of excellence in undergraduate, graduate and continuing professional education. (Standards 2, 9, 11)
- Faculty Renewal—To hire, develop and retain faculty, especially those with excellence in strategic educational and research areas. (Standards 2, 10)
- Research Investment—To develop an infrastructure that provides effective support for current and future researchers and administrators. (Standards 2, 3, 10)
- Infrastructure Support for Facilities and Technology—To create a campus community that engages in planning for a visually appealing campus environment, state-of-the-art technology and other needs of an evolving research university. (Standards 2, 3, 10)

### *Opportunity for Assessment (Standards 7, 14)*

The implementation process for *2020 Vision* includes rigorous assessment in pursuit of continuous improvement. At the top level, *2020 Vision* sets annual targets for 44 Key Performance Indicators (KPIs). Progress toward meeting KPI targets is directly linked to resource allocation and the reformulation of plan objectives and strategies. (See Section 6 for elaboration of the link between resource allocation and planning.) At a more operational level, every tactic used to implement *2020 Vision* is assessed on a regular basis employing methods and metrics developed by the division heads. (See section 5 for elaboration.) Together, these components of plan driven assessment provide a logic to the evaluation of institutional effectiveness and student outcomes.

### *Shared Governance and Strategic Planning (Standards 1, 2, 4, 5, 6)*

Implementation of *2020 Vision* allows the university community to grow and expand administrative relationships through shared governance. Implementing the strategies of an ambitious plan involves all members of the campus and developing the role of the university, and Faculty Senates in the process fosters the development of collaborative engagement as NJIT moves toward a common goal.

### **Challenges and Opportunities Beyond *2020 Vision***

The strategic plan outlines key challenges the university will face and the initiatives the university will undertake through 2020. However, the plan does not address all university challenges and opportunities.

### *Curricular Review and Maintaining Course Relevance (Standards 11, 12)*

With the ever-increasing rate of technological change, it is an ongoing challenge to maintain current curricula and offer cutting-edge courses in technology. Therefore, the Provost's Office is working with the Faculty Senate to conduct a comprehensive review of the university curriculum with the intention of updating it and identifying course offerings that need to be replaced or restructured to meet the educational needs of the technology professional. Along the same lines, Newark College of Engineering initiated in the third quarter of 2016 a plan to systematically involve the Advisory Boards/Boards of Visitors in assessing all undergraduate and graduate engineering curricula for their alignment with today's workforce needs. Where needed, the Boards have been asked to propose changes to course content for the consideration of the faculty.

### *Ensuring a Diverse Student Body (Standards 8, 9)*

The university aims to maintain its presence among the Top 100 Universities in granting engineering and engineering technology degrees to African American and Hispanic undergraduate students. The nationally recognized Educational Opportunity Program (EOP) contributes greatly to the university's success in building an inclusive campus. EOP's mission is to help NJIT's students succeed in college so they can build a better future for themselves and our society. For more than four decades, EOP at NJIT has been reaching out to talented young people in groups underrepresented in scientific and technical fields. As part of our on-going effort to maintain and expand the representation of minorities in the student body, the university will continue its support for the EOP and of the Greater Philadelphia Region Louis Stokes Alliance for Minority Participation. See Appendix for further details on the diversity of NJIT's student body.

### *Research and Development – Budgeting Incentives for Growth (Standards 2, 3, 5, 10)*

Expanding the extent and impact of research and development at NJIT is a comprehensive challenge involving faculty, students, and staff. With the goal of increasing the external academic research funding to \$40 million by FY 2020, it is essential to recruit faculty in key areas with external funding opportunities coinciding with future trends, existing strengths, and strategic directions as identified by the following strategic areas: life science and engineering; sustainable systems; data science and information technology; and transdisciplinary. By investing in areas that will add to our future available resources, we are investing in the growth of the university as a whole and increasing our revenue diversity. NJIT hopes to increase research participation of current faculty and provide funding for research and equipment in numerous fields.

### *Capital Renewal and Replacement (Standards 2, 3, 5, 10, 13)*

A major problem facing institutions of higher education is the maintenance and enhancement of aging facilities. NJIT has made infrastructure investments a priority and has dedicated funds that will increase our investment in capital renewal and replacement from \$8.4M in FY 2012 to \$20.8M by FY 2020, a 148% increase in funding levels over eight years. This \$20.8M equates to roughly 1% of the campus replacement value and will be used to ensure that the human, physical, and technological resources for student learning and faculty research have the highest priority.

As a polytechnic university, NJIT hosts facilities that require more resources and technology than the traditional educational institution. Capital projects requested in the FY17 State Budget Submission range from \$5M to renew existing capital assets to a \$15.8M investment in classrooms and teaching labs and equipment to enhance the availability of technology and multimedia resources.

Funding and maintenance of research equipment poses special challenges. Research equipment may vary in its definition—from a computer network to an electronic microscope—but the expense of equipment and the need for routine maintenance never changes. We expect that service contracts will cover most of the expenses, but service contracts do not usually cover the cost of parts. Furthermore, we do not usually consider replacement costs when purchasing equipment. Budgeting for research equipment, while keeping in line with our strategic plan, requires long-term planning since the useful lives of equipment can span several years or even decades.

### Classroom and Lab Space Renovation (Standards 2, 3, 9)

- NJIT has made substantial investments in university infrastructure with more than \$300 million in building projects scheduled for completion in this planning cycle. Despite these efforts, there is an ongoing need for investment.
- Renovation of the Central King Building, including smart-classroom technology, state-of-the-art telecommunications and computer networks, and advanced labs, is ongoing.
- Following a \$13.5 million grant, and a significant contribution from NJIT, to build a Life Sciences and Engineering Building, it is incumbent on the university to complete construction of the building on time and to purchase and install new laboratory equipment.
- With a \$20 million grant from the State of New Jersey also requiring an NJIT contribution, NJIT is embarking on the renovation of a teaching and laboratory building, and developing one of the state's largest "Makerspace" facilities. The university faces the challenge of completing the design and construction of the Makerspace and introducing it to the community. This process includes proper staffing; acquisition, installation and testing of all equipment; and introduction of procedures for use, safety and security, supervision, training, access, and consumption of materials and supplies.
- Development and maintenance of a rigorous schedule of equipment renewal in all teaching laboratories, especially renewal of computing equipment, is required.
- As facilities age, inspection and enhanced maintenance grow increasingly expensive.

- Developing cross-departmental procedures for sharing laboratories, computing equipment, and other facilities requires determined action.

## Technology

The greatest challenge facing IT support is balancing the funding of a realistic capital renewal and replacement cycle for existing IT infrastructure against the resource demands for new and enhanced IT services. With IT needs being considered as part of *2020 Vision*, and with the reestablishment of a formal advisory structure for IT services, mechanisms are now in place to ensure IT investment and project priorities are aligned with the strategic direction of the university.

Specific IT project priorities to enhance the delivery of education and support services are:

- Collaboration with faculty in curriculum redesign initiatives that leverage digital pedagogy and the development of additional NJIT Converged Learning classrooms.
- Development of customer relationship management systems for the recruitment and retention of students, particularly those enrolled in graduate digital programs.
- Development of new and enhanced IT services for delivery on mobile platforms.
- Enhancement of a shared research computing infrastructure that provides a base level of computational support for junior faculty to establish a record of scholarship.
- Enhancement of technology support services via establishment of a physical support center modeled after the Apple Genius Bar, and 24-hour service desk support for key IT services.

## Library

NJIT pursues multiple avenues to promote the accessibility of digital resources. For more than 20 years NJIT has participated in New Jersey's Virtual Academic Library Environment (VALE) consortium. We continue to pursue opportunities to advance the teaching, learning and research activities of New Jersey's higher education community by implementing a shared library management system to expand access to scholarly materials. This system will allow resource discovery and borrowing across the combined holdings of member libraries.

In addition to giving NJIT students and researchers access to information from throughout the region, NJIT will make the scholarship of NJIT researchers digitally accessible. The libraries will do the following five things:

1. Provide a more complete catalog of research and teaching activities at NJIT
2. Foster discovery of potential NJIT collaborators
3. Provide consistent and frequently updated information on NJIT faculty output
4. Satisfy mandates by publishers and funding agencies concerning access and versioning of articles
5. Store and preserve other institutional digital assets, including unpublished literature such as theses/dissertations, working papers, capstone projects, and technical reports



## Section 4: Enrollment and Financial Trends and Projections

### Trends and Planning

As part of the NJIT planning process, the Budget Office projected enrollment and finance trends through 2020. These projections depend first on a clear picture of the current financial status of the university and the known financial obligations and investments that will be required. It also requires a projection of the primary trends in revenue and expenses. This section offers detailed enrollment and finance information with significant supporting data for this section provided in the Appendix.

### Enrollment Overview

#### *Overall Enrollment Status and Full-Time Equivalent (FTE) Enrollment*

NJIT has experienced an increase in overall enrollment each year since the fall 2012 semester. As shown in Table 4.1, enrollment has grown 14.5%, from 9,994 in fall 2012 to 11,446 in fall 2016, an all-time high enrollment for the university. NJIT's five-year strategic plan, *2020 Vision*, targets an overall enrollment goal of 12,200 by the fall 2020 semester.

*Table 4.1 – NJIT Enrollment Trends for Undergraduates and Graduates  
(10<sup>th</sup> Day enrollment)*

	Actual						Projected			
	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Enrollment	Fall 11	Fall 12	Fall 13	Fall 14	Fall 15	Fall 16	Fall 17	Fall 18	Fall 19	Fall 20
Total Undergraduate HC	6,604	7,121	7,286	7,550	8,009	8,293	8,544	8,719	8,824	8,898
Total Graduate HC	2,954	2,822	2,844	3,096	3,316	3,153	3,091	3,137	3,216	3,302
<b>Total Headcount</b>	<b>9,558</b>	<b>9,943</b>	<b>10,130</b>	<b>10,646</b>	<b>11,325</b>	<b>11,446</b>	<b>11,635</b>	<b>11,856</b>	<b>12,040</b>	<b>12,200</b>
HC Delta	-	385	187	516	679	121	189	221	184	160
% Change	-	4.03%	1.88%	5.09%	6.38%	1.07%	1.65%	1.90%	1.55%	1.33%

#### *Undergraduate Enrollment: FTFTF and Transfer Students*

Overall undergraduate enrollment grew from 7,111 in fall 2012 to 8,293 in fall 2016. This growth represents a 17% increase in undergraduate enrollment.

First-time, full-time freshmen (FTFTF) enrollment rose 6% between fall 2012 (1,045) and fall 2016 (1,110). NJIT joined the Common Application beginning with the fall 2015 freshman applicant cycle. This initiative coupled with more aggressive outreach to prospective high school students resulted in a 51% increase in freshman applications. This increase in applications has provided the university with the opportunity to improve the quality of the FTFTF population. Quality, as defined by the composite SAT score (Math + Critical Reading), increased from 1162 in fall 2012 to 1219 in fall 2016 and the average high school GPA for the same population was 3.55. The university's acceptance rate for the fall 2016 FTFTF population decreased to 59.3%. *2020 Vision* calls for a SAT composite score goal of 1220 and an entering high school GPA of 3.65 for the FTFTF population by fall 2020.

Beginning in fall 2012 NJIT enrolled 671 transfer students. The intake of transfer students increased 18% to 792 in fall 2016. The vast majority of transfer students come to NJIT from the community colleges in New Jersey. NJIT has been updating articulation agreements with its community college partners to ensure a smooth academic transition to the university. The Admissions Office has initiated aggressive marketing activities to potential transfer students. See Appendix, Table 4.2 for a summary of NJIT Enrollment Trends for FTFTF and Transfer Students from fall 2012 to fall 2016.

### *Graduate Enrollment*

Graduate enrollment has grown from 2,833 in fall 2012 to 3,153 in fall 2016, an 11% increase. The growth in graduate enrollment is primarily at the master's level with enrollments increasing from 2,445 in fall 2012 to 2,726 in fall 2016. Ph.D. enrollment increased from 388 in fall 2012 to 427 in fall 2016.

NJIT relies heavily on international students, as 53% of the graduate enrollment in fall 2016 came to NJIT from overseas. Graduate international student enrollment increased 48%, from 1,205 in fall 2012 to 1,783 in fall 2016. The majority of international students enroll from either India or China. The university will strive to diversify its international student population through the use of international recruitment agents.

## **Undergraduate Enrollment Trends and Projections**

### *Undergraduate Enrollment Trends: FY 2013 through FY 2017 by Academic College*

As shown in Table 4.3 (see Appendix) Undergraduate Enrollment by College for fall 2012 and fall 2016, increases in students in Ying Wu College of Computing (YWCC), Newark College of Engineering (NCE) and the College of Science and Liberal Arts (CSLA) drove undergraduate enrollment growth from fall 2012 through fall 2016. Enrollments at the undergraduate level declined in the College of Architecture and Design (CoAD) and Martin Tuchman School of Management (MTSM) during the same period.

### *Undergraduate Enrollment Projections: FY 2018 through FY 2021*

Undergraduate enrollment is projected to continue to increase to 8,898 students in fall 2020. Improvements in retention and an increase in transfer students should drive this growth. We do not anticipate substantially “growing” the FTFTF population. The university’s goal is to maintain an FTFTF class within a range of 1,140 to 1,180 students. The transfer population will see the most substantial growth for new undergraduate students. We anticipate growing the transfer population from 792 in fall 2016 to 880 in fall 2020.

The university anticipates that the percentage of undergraduate students by academic college will remain consistent. NCE and the YWCC will continue to enroll nearly 70% of the undergraduate student population. CoAD, CSLA, and MTSM will implement new recruitment measures because these academic colleges have available enrollment capacity. (See Appendix, Table 4.4 which illustrates these trends and provides projections through 2020.)

## **College Enrollment Trends and Projections**

### *Graduate Enrollment Trends: FY 2013 through FY 2017 by Academic College*

The Ying Wu College of Computing and Newark College of Engineering led graduate enrollment growth from fall 2012 through fall 2016. Enrollments at the graduate level declined in the College of Architecture and Design and College of Science and Liberal Arts during the same period. There was no enrollment change in Martin Tuchman School of Management. (See Appendix, Table 4.5 for details on graduate enrollments by college.)

### *Graduate Enrollment Trends: FY 2018 through FY 2021*

Graduate enrollment is projected to increase to 3,302 in fall 2020. We anticipate growth in online programs and among international students. The university is also developing professional master’s degree programs that are expected to attract more part-time students. These programs, along with the creation of new graduate certificate programs, are designed to attract and increase the domestic graduate student population. Furthermore, Martin Tuchman School of Management has established a new Ph.D. program in business data science, which launched in FY 2017 and is expected to attract additional Ph.D. students.

The university is also seeking to increase the quality of the graduate student population. *2020 Vision* calls for an increase in the average GRE quantitative score for entering full-time M.S. students to 160. The university is on its way to meeting this goal as the average GRE quantitative score for the fall 2016 full-time M.S. population was 158.

More aggressive marketing initiatives have been implemented to attract graduate students. These initiatives include academic department electronic communications to prospective graduate students, the development of academic department-specific publications and virtual information sessions. The university has also entered into relationships with international student recruitment agents that are expected to diversify the countries from which students enroll. These agreements will also help us maintain our primary markets in India and China. (See Appendix, Table 4.6 – Graduate Enrollment Projections by Academic College for fall 2017 to fall 2020.)

## Financial Overview

### *Overall Financial Health and Ratings*

NJIT's financial position as of June 30, 2016, was sound, with total assets of \$799.3M, total deferred outflows of resources of \$22.7M, total liabilities of \$563.2M, and total deferred inflows of resources of \$1.8M. Net position, represented by the excess of the university's assets and deferred outflows of resources of its liabilities and deferred inflows of resources, totaled \$256.9M. The university's net position increased \$5.78M in fiscal year 2016.

In November 2016, Standard & Poor's (S&P) affirmed NJIT's A rating, with a stable outlook, on the university's outstanding debt. S&P assessed NJIT's enterprise profile as strong, reflecting its growing enrollment, good selectivity and retention rates, and a stable and seasoned senior management team. They also assessed NJIT's financial profile as strong, with healthy operating surpluses and relatively diverse revenue streams. S&P reported that the university's combined enterprise and financial profiles indicate a stand-alone credit rating of A+, however, due to the State of New Jersey receiving a rating of 'A-', with a negative outlook, NJIT maintained its A rating, with a stable outlook.

S&P's Positive Enterprise Profile credit factors for NJIT's:

- Niche as an engineering and research university with a focus on research and development initiatives.
- Demonstrated history of continual growth in full-time equivalent (FTE) enrollment with a fall 2016 total FTE of 9,897, a 1.6% increase compared with the previous fall.
- Seasoned senior management team with a track record of achieving core strategic goals and objectives.

S&P's Positive Financial Profile credit factors for NJIT's:

- Consecutive years of full-accrual net-adjusted operating surpluses.
- Diverse revenue sources compared with peer institutions.
- Multiyear operating and capital plans typically incorporated as part of the annual budget development process.

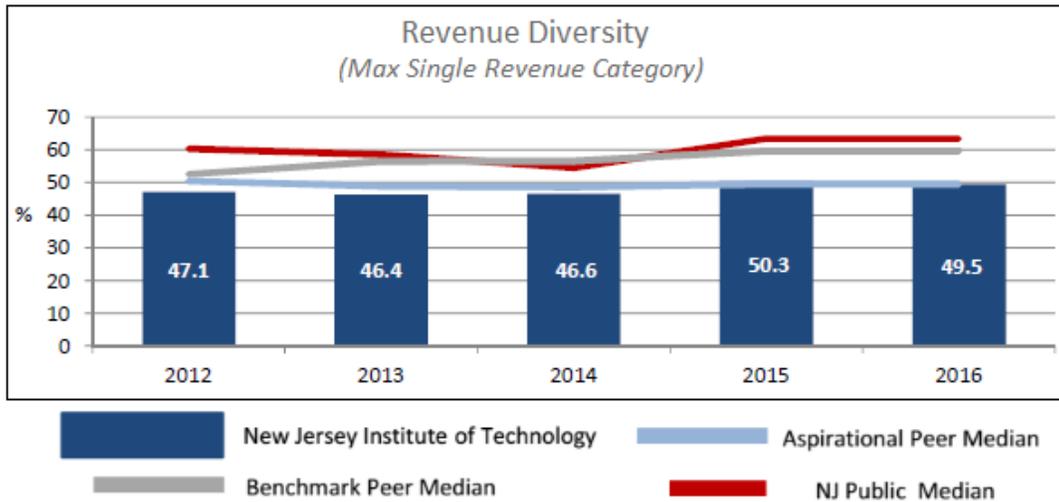
*Financial Indicators and Ratios: Revenue Diversity, Liquidity, Debt*

In addition to S&P, NJIT has also been evaluated by Moody's and given the rating of A1, which judges the university to be upper-medium grade and subject to low credit risk, and to have a superior ability to repay short-term debt obligations. Prager & Co. has provided NJIT with charts and data pulled from Moody's ratings that analyze the university's dashboard metrics and compares them with other New Jersey public institutions as well as benchmark and aspirational peers. Categories analyzed include market position, operations, financial reserves, and debt and liability.

*Revenue Diversity*

Revenue diversity represents the dependence on the largest revenue category and equals Max Single Revenue Category divided by Total Unrestricted Revenues. NJIT's largest single revenue category is tuition and fees. NJIT has better revenue diversity, since it is less reliant on student tuition and fees when compared with other New Jersey public institutions, and because it demonstrates operational flexibility. As shown in Figure 4.1a, NJIT's revenue base is more diverse than other New Jersey public institutions and is in line with benchmark and aspirational peers (see Appendix, Figures 4.1b and 4.1c for further detail).

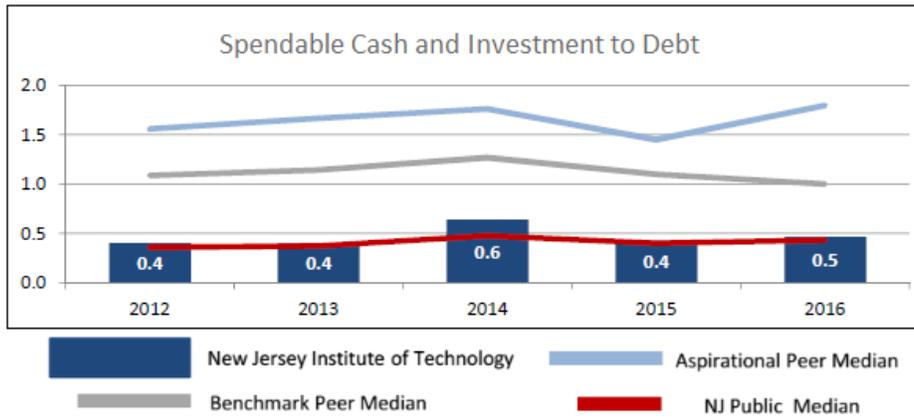
*Figure 4.1a – Revenue Diversity (Max Single Revenue Category)*



*Liquidity (Spendable Cash and Investment to Debt)*

Spendable cash and investment to debt (Figure 4.2a) measures unrestricted funds available to cover operating expenses and equals the sum of cash and investments, funds held in trust and restricted pledges receivable, less permanently restricted funds, divided by total operating expenses. (See Appendix, Figures 4.2b and 4.2c for further detail and Figures 4.3a, 4.3b, and 4.3c for related information about how NJIT's spendable cash and investments to operations falls below New Jersey public institution peers as well as benchmark and aspirational peers.)

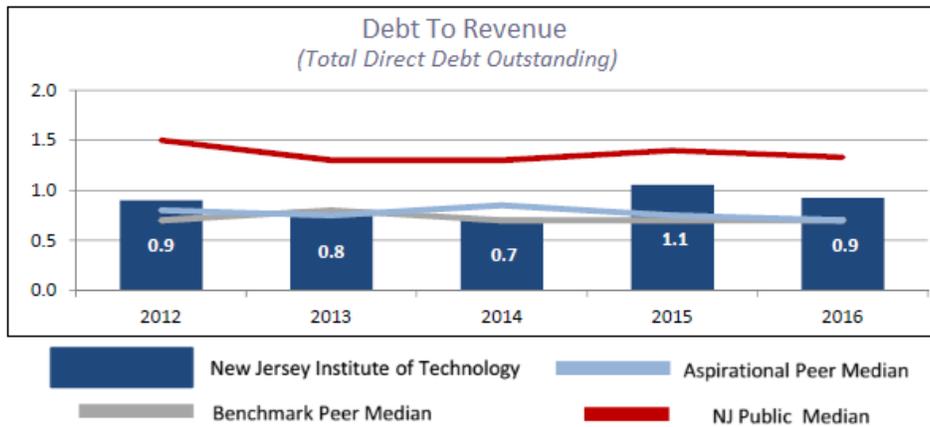
Figure 4.2a – Spendable Cash and Investment to Debt



*Debt to Revenue*

Debt to revenue (Figure 4.4a) measures NJIT’s debt obligation compared to the size of its operating base and equates to total direct debt outstanding divided by operating revenue. See Appendix, Figures 4.4b and 4.4c which show NJIT less leveraged than most New Jersey public institutions and in line with benchmark and aspirational peers. This profile shows NJIT as less dependent on borrowed dollars than other institutions in New Jersey. It indicates financial stability, since state appropriations are on trend to decline.

Figure 4.4a – Debt to Revenue



## Net Assets

Table 4.7 - NJIT Audited Financial and Net Assets

Financial Statement - Year End Actual (\$000's)					
	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Total Operating revenues	197,988	210,733	220,537	234,464	263,222
Total Operating expenses	263,035	285,077	304,817	304,932	349,835
<i>Operating (loss)</i>	<i>(65,047)</i>	<i>(74,344)</i>	<i>(84,280)</i>	<i>(70,468)</i>	<i>(86,613)</i>
Nonoperating revenues (expenses):	61,553	85,854	103,882	80,881	84,966
<i>Gain (Loss) before other revenues</i>	<i>(3,494)</i>	<i>11,510</i>	<i>19,602</i>	<i>10,413</i>	<i>(1,647)</i>
Total other revenues	4,167	5,833	74,012	24,441	7,425
<i>Increase (decrease) in net assets</i>	<i>673</i>	<i>17,343</i>	<i>93,614</i>	<i>34,854</i>	<i>5,778</i>
Cummulative effect on change in acct. principle				(103,997)	
<b>Net Assets</b>	<b>211,877</b>	<b>226,661</b>	<b>320,275</b>	<b>251,132</b>	<b>256,930</b>
<i>% Change in Net Assets</i>	-	7.0%	41.3%	-21.6%	2.3%

Table 4.7 shows the university's change in net assets over the past five years. The university's net position has increased by an average of 7.2% from \$211.9M in FY 2012 to \$256.9M in FY 2016, but has fluctuated during that time. In 2014 NJIT received a large capital grant under the state's *Building Our Future* program which increased net assets by 41.3% over the previous fiscal year. Effective July 1, 2014, NJIT adopted Governmental Accounting Standards Board (GASB) Statement No. 68, Accounting and Financial Reporting for Pensions, which addresses accounting and financial reporting for pensions provided to employees of governmental employers through pension plans administered through trusts. The \$103,997,000 effect shown above is the FY15 impact of the adoption of GASB 68. It is important to note that the recording of this liability is for financial statement purposes only, since the state continues to pay the liability on our behalf.

## Statements of Revenues and Expenses

NJIT recognizes the importance of maintaining healthy revenue streams to support the strategic priorities outlined in *2020 Vision*. To this end, the university has paid careful attention to the growth of its revenue streams, operating expenses, and unrestricted net position.

Figure 4.5 – Total Revenues FY 2012 – FY 2016

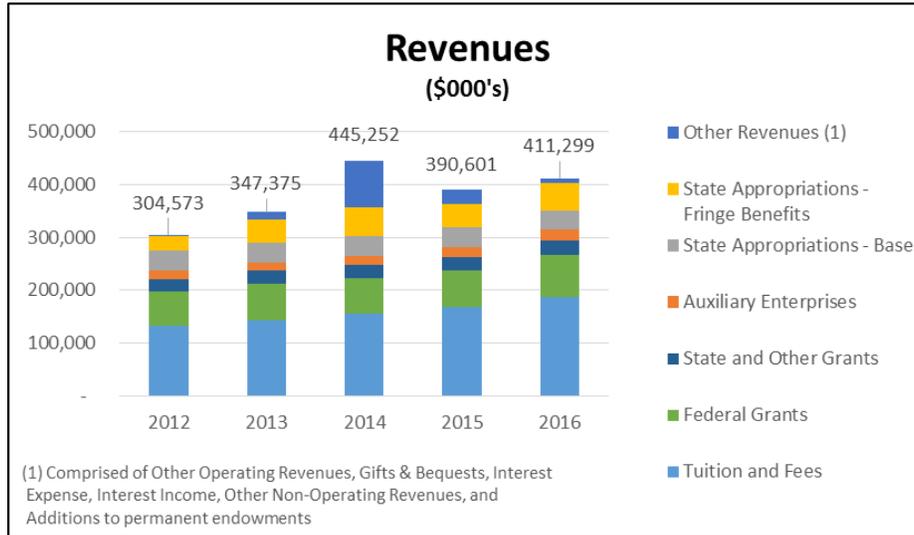


Table 4.8 – Total Revenues FY 2012 – FY 2016

FY 2012 - FY 2016 Revenue (\$000's)					
	2012	2013	2014	2015	2016
Tuition and Fees	132,073	144,146	155,138	169,337	186,321
Federal Grants	66,078	68,649	66,908	67,804	80,635
State and Other Grants	22,440	23,754	24,969	26,287	27,703
Auxiliary Enterprises	15,948	16,274	17,273	18,584	20,275
State Appropriations - Base	37,696	37,696	37,696	37,696	35,440
State Appropriations - Fringe Benefits	27,686	43,099	54,390	43,194	52,092
Other Revenues (1)	2,652	13,757	88,878	27,699	8,833
<b>Total</b>	<b>304,573</b>	<b>347,375</b>	<b>445,252</b>	<b>390,601</b>	<b>411,299</b>

(1) Comprised of Other Operating Revenues, Gifts & Bequests, Interest Expense, Interest Income, Other Non-Operating Revenues, and Additions to permanent endowments

*Major Revenue Trends: FY12 – FY16*

Tuition and Fees

The most significant components of the increase in total revenues are student tuition and fees. Increases in annual enrollment averaging 4.9%, coupled with an average annual 3.8% tuition rate increase, have led to an overall increase in tuition and fee revenues from \$132.1M in fiscal year 2012 to \$186.3M in fiscal year 2016.

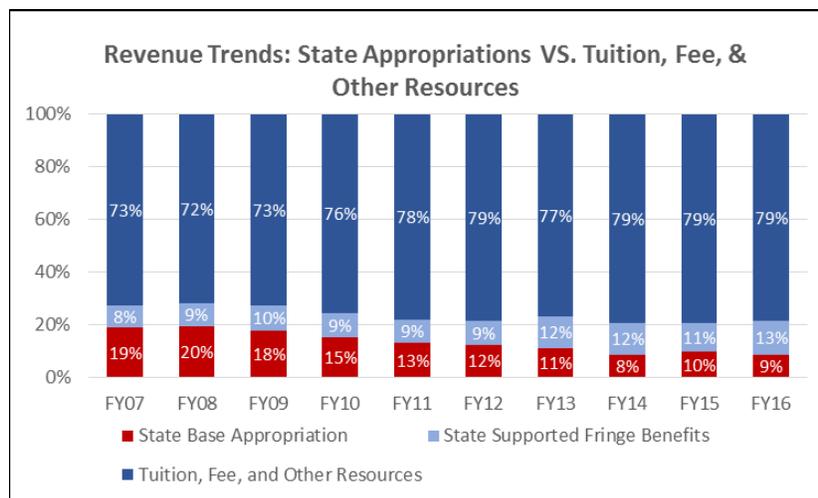
## Federal, State, and Other Grants and Contracts

Federal, state, and other grants and contracts have increased by \$19.8M, or 22.4%, from \$88.5M in fiscal year 2012 to \$108.3M in fiscal year 2016. This notable increase is due to increases in student financial assistance grants, and research grants and contracts.

## State Appropriations

Total state appropriations have increased by \$22.2M, from \$65.4M in fiscal year 2012 to \$87.5M in fiscal year 2016; this increase is 100% attributable to the increase in fringe benefits costs. Base state appropriations declined by 6% in fiscal year 2016, going from \$37.7M in fiscal year 2015 to \$35.4M in fiscal year 2016. The revenue trends shown in Figure 4.6 illustrate how NJIT has been able to decrease its reliance on state appropriations, primarily due to an increase in tuition, fees, and other revenue sources.

*Figure 4.6 – Percentage of Total Revenue Trends, FY 2007 – FY 2016*



## Auxiliaries

Throughout this period, auxiliaries have increased by 27.6%, from \$15.9M in 2012 to \$20.3M in 2016. The largest component of auxiliary income is the residence halls. In the fall of 2013 (FY 2014), we opened Albert Dorman Honors College and our Greek Village, which increased capacity by 600 beds. We have approximately 2,000 beds available and have an overall occupancy rate of about 95%. Annual increases are typically between 2% and 3% per year. Therefore, auxiliary income has experienced healthy revenue growth over the past five years.

## Other Revenues

Other revenues growth fluctuated from FY 2012 – FY 2016 but grew at an average of 125% from \$2.65M in FY 2012 to \$8.83M in FY 2016. In FY 2014, the university received a one-time capital grant of \$79,843,000 under the state's *Building Our Future* program; this caused a spike in other revenues.

Figure 4.7 – Total Expenses FY 2012 – FY 2016

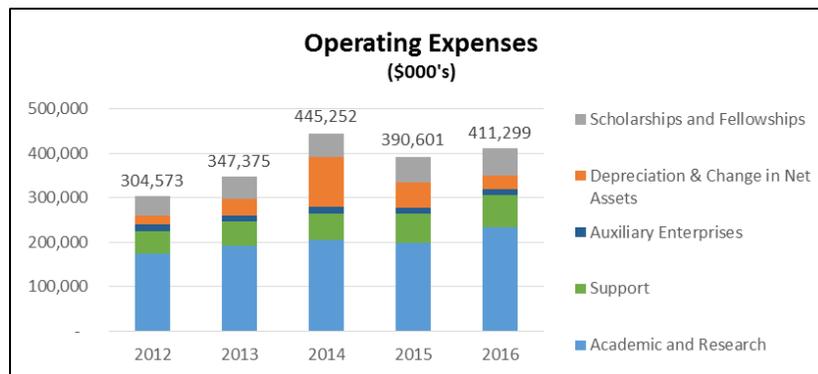


Table 4.9 – Total Expenses FY 2012 – FY 2016

FY 2012 - FY 2016 Expense (\$000's)					
	2012	2013	2014	2015	2016
Academic and Research	174,260	191,974	204,265	197,878	233,288
Support	51,196	53,964	60,273	66,132	72,713
Auxiliary Enterprises	13,662	14,593	13,873	12,796	12,853
Depreciation & Change in Net Asset	19,498	36,175	113,020	57,032	31,346
Scholarships and Fellowships	45,957	50,669	53,821	56,763	61,099
<b>Total</b>	<b>304,573</b>	<b>347,375</b>	<b>445,252</b>	<b>390,601</b>	<b>411,299</b>

Shown in the table and figure above is a five-year history of operating expenses based on the university's audited financials. From fiscal year 2012 to fiscal year 2016, total expenses increased from \$304.6M to \$411.3M, an increase of 35.0%.

### Major Expense Trends: FY 2012 – FY 2016

#### Academic and Research

The majority of expenses incurred by NJIT continue to be academic- and research-related, the effects of which are of importance to the achievement of all aspects of *2020 Vision*. Academic and research expenses totaled \$233.3M in fiscal year 2016, an increase of \$59M (33.8%) since fiscal year 2012 when expenses totaled \$174.3M.

### Auxiliary Enterprises

Auxiliary enterprises are primarily residence hall expenditures. The decrease in expenses is due to the cancellation of our off-campus lease once the Albert Dorman Honors College dorm and Greek Village opened in FY 2014. Auxiliaries also includes revenues from parking operations.

### Support

Non-academic support has increased as a direct result of overall university growth. As enrollments and university operations continue to grow and thrive, support expenses increase to help maintain this growth.

### Depreciation and Change in Net Assets

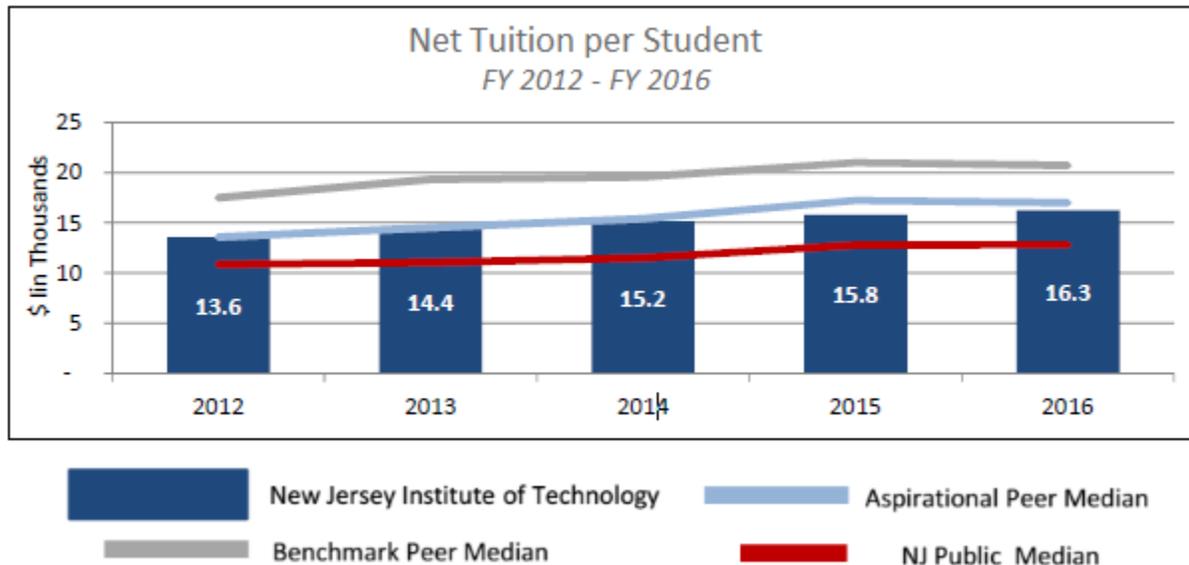
Throughout FY 2012 – FY 2016 depreciation has increased due to the addition of new buildings such as the Central King Building, Albert Dorman Honors College, Greek Village, and Naimoli Center.

### Scholarships and Fellowships

Scholarship and fellowship expenses have increased by 33% from \$45.9M in FY 2012 to \$61.1M in FY 2016. This increase reflects increases in scholarships combined with substantial enrollment growth and an increase in the quality of our incoming freshmen. We have also experienced notable growth in our Ph.D. programs.

### *Net Tuition per Student*

Figure 4.8 – Net Tuition per Student FY 2012 – FY 2016



Net tuition per student represents the average tuition and fees the institution receives per student and is calculated by taking net tuition and fee revenue and dividing it by FTE enrollment. NJIT's net tuition per student has increased by almost 20% from \$13,600 in FY 2012 to \$16,300 in FY 2016. As illustrated in Figure 4.8, NJIT's net tuition per student is higher than other New Jersey public institutions but is below benchmark and aspirational peers, which include some private institutions.

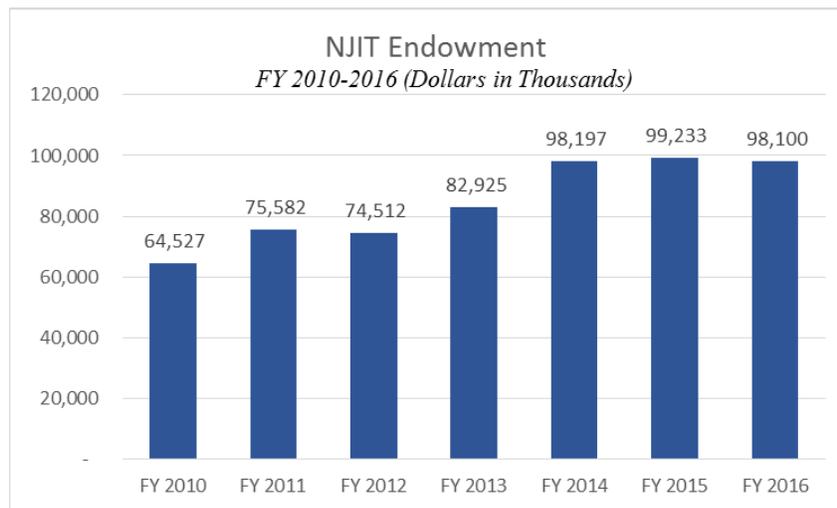
*Endowment Growth*

NJIT's endowment has increased by \$23.6M, or 31.5%, since FY 2012. In 2007, NJIT formed the NJIT NEXT campaign that plans to raise \$200M over 10 years (see Appendix for further details). As of June 30, 2016, the comprehensive campaign totals \$171.8M. Alumni giving accounts for 71% of all donations to the NJIT campaign with 14,628 donors giving a combined \$23.6M.

Philanthropic Giving Update as of June 30, 2016:

- Gifts: \$46.8M
- Pledges: \$57.7M
- Cash in Hand: \$78.2M
- Number of Donors: 20,646
- Grants: \$67.3M

*Figure 4.9 – Total Endowment FY 2012 – FY 2016*



*Establishment of New Jersey Innovation Institute (NJII)*

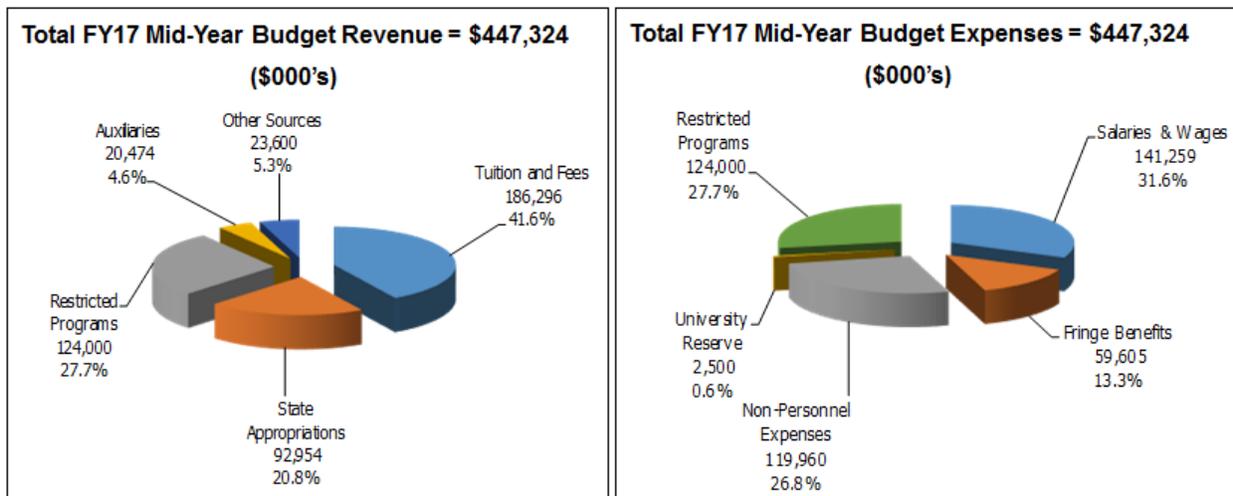
The university launched the New Jersey Innovation Institute (NJII), an NJIT 5.01c3 corporation, in July 2014 for economic engagement and to provide services to businesses and industry. Called to action by the decline in corporate research and development over the past generation, NJII’s vision and programs are designed to fill gaps in the region’s ability to develop new technology to meet the challenges of competing successfully in the 21st-century global economy. It has proven to be highly successful, increasing activities from \$36M in FY 2015 to projected \$60M in FY 2017 while reducing the NJIT share of expense from \$3.8M to \$2.6M.

**Financial Status**

*Fiscal Year 2017 Operating Budget*

NJIT’s approved operating budget for FY 2017 totals \$447.3 million. It includes \$323.3 million in unrestricted funds and \$124 million in restricted funds. The *2020 Vision* funds for FY 2017 total \$4.8M, which includes \$1.5M for new faculty hires and \$3.3M for capital renewal and replacement. New to FY 2017, the operating budget includes the establishment of a \$2.5M reserve. The recommended balanced budget includes an in-state undergraduate 1.25% tuition rate increase and 5.76% fee rate increase for a weighted average 2.0% increase. Figure 4.10 shows the FY17 approved budget revenue and expense growth.

*Figure 4.10 – FY 2017 Operating Budget – Revenue and Expense View*



For budget projections through 2020 made in conjunction with *2020 Vision*, please see the Section 6.



## Section 5: Organized and Sustained Processes to Assess Institutional Effectiveness and Student Learning

### Introduction

*Assessment of student learning* is organized around NJIT's long-standing program review and course evaluation processes. After more than a decade, program review and course evaluations are well-established, ongoing, institutionally-supported activities that engender a culture of assessment at NJIT. Independent initiatives to conduct institution-wide assessment of student learning build upon these activities.

*Assessment of institutional effectiveness* is largely guided by the evaluation of strategies and tactics set out in *2020 Vision*. Overall, the KPIs in the strategic plan set critical institutional targets. The plan's assessment strategy draws on diverse sources including annual surveys, benchmarking studies, special focus surveys and independent research, and the assessment of administrative and student support units. Using the strategic plan as a basis for the assessment of institutional effectiveness ensures a structured reporting schedule that documents progress toward institutional targets, fosters continuous improvement in strategic plan implementation, and promotes communication of assessment outcomes to the wider NJIT community.

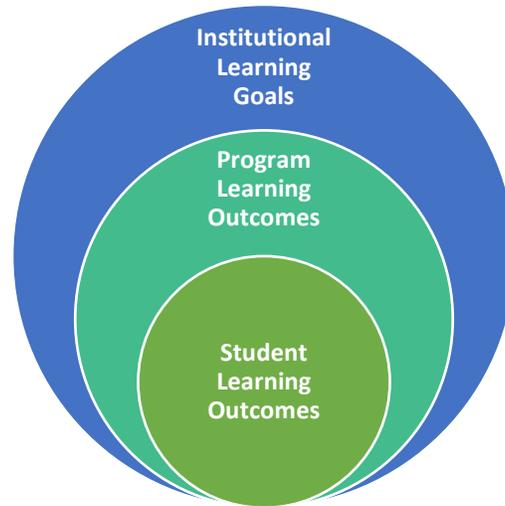
The assessment of institutional effectiveness, the program review process, and course evaluations are key functions of the Office of Institutional Effectiveness (OIE). OIE incorporates traditional institutional research functions with assessment, planning, and accreditation activities. OIE also frequently collaborates with other units to guide and analyze internal studies of effectiveness.

### Assessment of Student Learning

#### *Teaching and Learning Outcomes Assessment*

Academic assessment is an integrated endeavor that addresses the achievement of student learning outcomes at the course level, evaluates the appropriateness and quality of courses in the context of the program learning outcomes, and determines how the programs support and reinforce the Institutional Learning Goals as depicted in Figure 5.2 below (see Appendix, Figure 5.1 for Institutional Learning Goals). The program review process investigates the interrelationships of these three levels.

*Figure 5.2 – Relationship Between Student Learning Outcomes, Program Learning Outcomes, and Institutional Learning Goals*



A university-wide assessment process has been developed and reviewed with the participation of university stakeholders and the various colleges have created and implemented schedules for program-level assessments. The Faculty Senate Committee on Academic Assessment and the college assessment committees also recently tested and refined the program assessment rubric. Program and student learning outcomes are also reviewed as part of the ongoing assessment process to ensure compliance with Middle States' Standard 14.

### *Program Review*

The NJIT program review process has four objectives:

1. To provide a forum for the assessment and improvement of all degree-granting university programs;
2. To demonstrate continuous improvement in the delivery of educational curricula;
3. To promote a culture of assessment by building a cohesive assessment strategy;
4. To create a central, web-based repository for assessment design and supporting documents.

The university's program assessment template (see Appendix) clearly delineates the integration of institutional learning goals into program learning outcomes and related student learning outcomes.

Each academic department offering a major or minor should have a written, five-year assessment plan. The plan ensures that members of the department understand the assessment goals and activities. Also, each summer the department files a brief assessment report that documents assessment efforts conducted by the department over the previous year and the results of the assessment.

The university reviews every graduate and undergraduate degree program on a five-year cycle. Department assessment committees accept or reject the review from the program faculty and forward their assessment to the department chair. The chair forwards acceptable reviews with a cover letter of acceptance simultaneously to the Faculty Senate Committee on Academic Assessment and the assessment committee of the college hosting the degree programs. The committees score reviews using a normed rubric. The Faculty Senate and college committees then resolve disagreements, if necessary. Those degree review reports deemed acceptable by both the Faculty Senate and college committees are forwarded to the dean of the respective college; the dean subsequently forwards accepted reports to the provost with a letter of acceptance. The dean returns unacceptable reports to the program for review and revision. Reports accepted by the provost are posted by OIE. (See Appendix for the program review templates and the rubric used to evaluate program review reports.)

In addition to the five-year reports, each degree program submits a summary report every year addressing actions taken during that year on the recommendations from the five-year review report.

### *The Benefits of Program Review*

Program review depends on the self-study of an academic program by the program's leadership and faculty. The program uses the findings and recommendations for continual improvement in the content and delivery of courses comprising the program, and to evaluate how the courses meet the current needs of the program discipline. Follow-up reports are submitted yearly to substantiate that recommendations are being acted upon, resulting in continual improvements. Assessment outcomes of program review have led to curricular changes, pedagogical inquiries, and, in some cases, the sun-setting of programs that are no longer viable.

### *Assessment of GUR and Information Literacy Assessment*

The university reviews the General University Requirements (GUR) curricula in the same way it reviews academic degree programs. The departments responsible for the delivery of aspects of the GUR curricula are responsible for conducting these reviews. For example, the Department of Humanities offers the writing component of the GUR and conducts the program review of the writing program. On a broader level, the content of the GUR is currently under review by an ad hoc committee of the Faculty Senate and will present its findings and recommendations to senior administrators. This ad hoc committee has solicited input from multiple stakeholders across the university, including the deans of all colleges as well as faculty and student representatives.

The library staff offers information literacy instruction in a range of courses at NJIT. Within the framework of these courses, ongoing assessment of information literacy occurs, and the Humanities 101 and 102 sequence uses the most formal assessment tools.

### *Course Evaluations*

In fall 2014, NJIT adopted a new course evaluation system (eXplorance Blue) to conduct all course evaluation activities online and integrated with NJIT's existing online systems. The university purchased eXplorance Blue because it met the requirements of faculty, administration, UIS, and OIE. Key features include:

- Single sign-on access
- Access to real-time response rates
- PC, laptop, tablet and smartphone compatibility
- Option for faculty to schedule and conduct online evaluations in the classroom
- Native integration with Banner and Moodle
- Support for evaluation of team-taught and cross-listed courses
- Inclusion of instructor images
- Automated email invites and reminders
- Automated report delivery to senior administration, deans, chairs, and faculty
- Permanent access to reports from current and past semesters
- System reports with color-coded charts allowing a variety of users to conveniently benchmark any course against departmental, college or university-wide means

Despite the change in the delivery of the evaluations, the questions remain the same as in previous years to ensure a consistent and sustained evaluation of NJIT's courses. See Appendix for a copy of the face-to-face and distance learning course evaluation surveys.

Overall, the investment and implementation of the new evaluation system has yielded important benefits for the university because faculty members accept the course evaluation form and process, and view the results as credible and applicable. They make reliable data available for decisions regarding instructional needs and to support institutional planning.

Course evaluations have contributed most to faculty development initiatives. Faculty, chairs, and deans review results to identify those needing development and guidance in teaching. The colleges have instituted faculty development workshops and established mentoring programs that pair master teachers with junior faculty. NJIT's Institute for Teaching Excellence (ITE) also offers a variety of workshops, seminars and consultation services for faculty. In receiving feedback on their teaching, faculty can also review student comments to open-ended questions. These comments have proven useful in illustrating possible problems, as well as showing an instructor's strengths.

Course evaluations also serve as a meaningful component of the promotion and tenure process, and in course assignment and reappointment of adjunct faculty. OIE also provides course evaluation results for faculty under consideration for special awards and recognition.

### *Gateways to Completion*

NJIT is participating in the John N. Gardner Institute's Gateways to Completion (G2C) process, focusing on the development of an evidence-based plan to improve student learning and success in high-enrollment courses with high failure rates. OIE supports the G2C initiative by providing institutional data to the G2C Task Force to assist in the evaluation of evidence and creation of a plan for improvements in three identified barrier courses. The G2C Task Force brings together instructors who teach the barrier courses, staff members who contribute to the success of the courses, and administrators who can help facilitate change.

The G2C process includes an annual survey (Student Assessment of Learning Gains Survey) that focuses on student perception of the barrier courses. It also develops an annual data inventory including key statistics relating to the barrier courses (i.e., pass rates) to inform the G2C Task Force and the Gardner Institute on progress made to date.

### *Converged Learning Assessment*

NJIT has developed a digitally enhanced teaching model called "converged learning." In this model, courses are taught in specially equipped classrooms that allow students to attend "virtually" and simultaneously with all the participation possibilities of their face-to-face peers attending the same class. In fall 2015, four courses (CS 114, HSS 404, IS 677, PHIL 337) were delivered using converged learning. In CS 114, students in two sections had the option to attend a single scheduled class either in person or online. In the HSS, IS and PHIL courses, instructors delivered one section with an online option and another section through traditional classroom teaching only. For each course, the same instructor taught both converged and non-converged sections.

OIE conducted an assessment of student learning (mid-term, final exam, grade distributions, and overall pass rate) and found no detriment to student learning for students attending online (see Appendix). The assessment also included an analysis showing the frequency of online attendance, changes in online attendance across the semester, and relationships between the number of classes attended online and student performance. Student opinions on converged learning were also collected through a short survey and indicated that approximately 70% of respondents preferred the converged learning format over face-to-face attendance or watching a recording later. This assessment provided an important analysis of the impact of the converged format on student learning. The results will guide future implementation.

### *Accreditation*

NJIT further ensures it meets its mission in professional education through external accreditation for its eligible professional programs. These accreditations each involve the rigorous assessment of student learning and student outcomes.

- Accreditation Board for Engineering and Technology
- Association to Advance Collegiate Schools of Business
- American Chemical Society
- Council for Interior Design Accreditation

- National Architectural Accrediting Board
- National Association of Schools of Art and Design

## **Institutional Effectiveness**

*2020 Vision* provides a basis for organizing the assessment of institutional effectiveness. Each strategy within the strategic plan relates to a KPI, and each tactic includes an assessment method to ensure frequently monitored progress. The Steering Committee issues an updated KPI report twice a year to focus attention on strategic plan implementation. (See Appendix for reporting schedule.) The KPI report is provided to all committees and posted on the strategic planning website.

### *Surveys*

OIE manages the development, revision, and administration of annual and special-focus surveys for students, faculty, staff, alumni and employers. All surveys are conducted online using Web Access survey (WAsurvey) which is customized and branded for NJIT. Following data collection and analysis, OIE produces reports for dissemination and posts them on the OIE website.

The NJIT survey research program addresses four categories of stakeholders:

1. Students (current students and alumni)—the NJIT commitment to students requires the routine gathering of information about student goals, opinions, needs, and suggestions.
2. Instructors—NJIT ensures all instructors opportunities for input about new technology for teaching and learning and administrative services and processes.
3. Senior Management—The data facilitates benchmarking, strategic planning, governance, and decision-making.
4. Non-NJIT partners (e.g., city, state entities, and employers)—Soliciting opinions from community partners promotes university responsiveness.

NJIT has established a survey schedule covering the full experience of an NJIT student—eliciting input from students about their first-year experience, their annual experience, and their views at graduation and as alumni.

*Entering Student Surveys* are administered to all first-time undergraduate and graduate students. The survey concentrates on two areas: factors that influenced their decision to attend, and issues related to the continuing development of recruitment and marketing strategies for the Admissions Office.

*Undergraduate and Graduate Student Satisfaction Surveys* include questions about campus life, public safety, student activities and services, as well as student academic programs.

*Undergraduate and Graduate Graduating Students* are contacted toward the end of their final fall and spring semester.

*Alumni Surveys* (graduate and undergraduate) are run on a two-year cycle unless there are special accreditation needs.

*Employers of NJIT Graduates and Interns* are surveyed every three years. The survey was recently updated to reflect the crucial skills that are most sought by employers according to PayScale. Employers are asked to report their sources for recruiting professional-level personnel, factors that influence their university-based recruitment, and the skills and competencies of NJIT graduates, interns, and co-op students. These areas of information were developed to continue to improve the employment opportunities for NJIT students and graduates.

### *Special-Focus Surveys*

Individual departments frequently request specialized surveys for planning purposes. Where feasible, special-focus survey questions are incorporated into annually scheduled surveys to reduce the number of surveys in the field and to capitalize on the high response rates for existing surveys. In the past few years, OIE has conducted the following surveys:

- Shared Governance (TT/Tenured, Lecturers, Adjuncts)
- Shared Governance (Professional Admin, Staff)
- IDEAS survey
- Residential Life
- Housing
- Athletics Team Evaluations NCAA
- Study Abroad
- Educational Opportunity Program (EOP) Evaluation Summer
- NJIT Facilities Survey
- Learning Community Survey/Learning at NJIT Survey
- TLT Classroom Survey
- Honors College Survey
- Exit Survey
- Music Initiative Survey
- OPEIU Surveys (Supervisor and Employee)

### *National Benchmarking Surveys*

About every three years since 2006, NJIT has participated in the National Survey of Student Engagement (NSSE), a national benchmarking survey to assess how the university compares to national peers. NJIT will participate in the 2017 NSSE survey, using the Teaching Professional Development and Learning with Technology module. Adding this module will help academic administrators from the provost to associate deans better understand the interactive teaching environment on a social and technological level. To provide a more complete picture of the teaching environment, NJIT will also participate in the faculty version of NSSE, known as the Faculty Survey of Student Engagement (FSSE), in spring 2018.

NJIT has also participated in the ECAR (Educause Center for Analysis and Research) Survey of Undergraduate Students and Information Technology on a regular basis since 2007. This national benchmarking survey has provided a wealth of data to continuously assess our technological infrastructure and computer support. In 2015, NJIT participated in the new ECAR Survey on Faculty Technology Experiences, which shed light on the use of technology in the classroom.

### *Studies of Institutional Effectiveness*

OIE also conducts in-depth research studies of institutional effectiveness and supports other divisions in conducting their effectiveness studies. These studies typically focus on measures of institutional effectiveness, ranging from facilities management to student success in specific courses or programs.

Some examples of recent studies of institutional effectiveness include:

- Assessment of Learning Communities (Student Outcomes and Perceptions 2013-2015)
- Graduation Rate Report (5-year Trends – see Appendix)
- Development of models to predict enrollment and graduation
- U.S. News Rankings: Modelling of most influential factors and prediction
- Graduation rates for Underrepresented Minorities (10-year Trends – see Appendix) and briefing summary on the National Achievement Gap Between Black and White students
- Faculty Hiring & Diversity Report and Benchmarking
- Facilities renewal and maintenance needs and satisfaction
- Technology needs and satisfaction
- Faculty research productivity analysis

Taken together, these studies offer detailed insights into key issues for the institution using existing institutional data. These reports aim to provide senior administrators, deans, and departments with the information they require to assess the effectiveness of special initiatives and evaluate success at all levels of the institution.

### *Dashboard Development*

During the past year, NJIT has been engaged in the development of dashboards to provide senior administrators with critical information available on demand. This dashboard project moves beyond an interactive “factbook” showing current, published information. It provides real-time information about such critical issues as applications, admissions, and deposits by linking to the university student information system. OIE designed the presentation of data on the dashboards for clarity and rapid evaluation through the use of charts and comparisons to the previous year’s data. This system is available online and is password protected. It permits senior administrators to make decisions about budgets and new enrollment initiatives based on the most current numbers.

The dashboard project is continuing to develop with the addition of real-time charts showing faculty workload, expenses, budget and other information needed by decision makers. The primary goal in employing dashboards is to visualize institutional data, provide useful information in a concise format, and allow users to compare the data to past years.

### *Assessment of Administrative Divisions/Student Support Services*

Offices at NJIT have collaborated to conduct numerous internal assessments for non-academic services or units at NJIT that assist department/division/program leaders in making informed decisions regarding possible changes and improvements to special programs and initiatives.

For example, an internal study of centralized advising at NJIT was undertaken and subsequently led to an external assessment of advising in 2014/15. The purpose of the review was to assess and, if necessary, to redesign centralized advising at NJIT. The external review endorsed the centralized advising model in place at NJIT and established the Advising Success Center as a separate unit.

Similarly, offices worked together to assess the Learning Communities program at NJIT by gathering available data since the inception of the program, conducting descriptive and statistical analysis and presenting the report to the director of the program.

A five-year schedule for the assessment of academic affairs and student support services at NJIT ensures the routine review of administrative and student support units, and this further fosters the culture of assessment at the institution. (See Appendix for the academic affairs assessment schedule.)



## Section 6: Linked Planning and Budgeting

### Linked Institutional Planning and Budgeting

A successful strategic plan connects to the university budgeting process. It reflects and informs budget decisions. From *2020 Vision's* initial development phase in 2014-15, the resources available for investment were identified and reserved through the end of FY 2020. The planning objectives, strategies, and tactics articulated in the plan reflect realistic constraints, and budgeting decisions follow accordingly. Even with the best budget projections, however, circumstances change and new challenges emerge. Therefore, university administrators revisit the plan and the budget annually for adjustments.

In addition to university circumstances, assessment of strategic plan implementation also plays a critical role in the allocation of resources. Each tactic for plan implementation includes metrics or other tools to evaluate effectiveness. These metrics offer opportunities to identify successful tactics that may warrant additional funding and unsuccessful tactics that must be changed or ended. By linking resource allocation to assessment, NJIT maximizes the effectiveness of the link between planning and budget.

### 2020 Budget Projections and Funding *2020 Vision*

The *2020 Vision* Financial Budget Model was developed to determine the financial resources available to invest in the strategic priorities. The FY 2015 mid-year adjusted operating budget set a solid foundation on which to build this original model. The revenue assumptions included in the model reflect conservative, yet realistic, expense and revenue assumptions defined below:

- A 2.75% average annual increase in overall enrollment to achieve a headcount of 12,200 by fall 2019.
- An overall 3% annual tuition and university fee rate increase (2.5% and 6% increase respectively).
- Steady base state appropriation, consistent with previous four-year funding levels (\$37.7 million).
- Other revenue sources such as unrestricted giving, indirect cost recoveries, state-funded fringe benefits, and auxiliaries with conservative annual increases.

The original financial model assumptions demonstrated cumulative new resources available to support the strategic plan totaling \$88.5 million annually. Furthermore, this model established a capital renewal/replacement (CRR) budget of \$20.8 million by 2020, an increase of \$10.8 million above the FY 2015 base. The remaining resources, \$64.7 million, cumulatively, will fund new priorities directly linked to *2020 Vision* objectives.

The financial model is updated annually to reflect actual results and provide insight into how current trends and investments impact future financial outcomes.

Table 6.1 2020 Vision Financial Model

**New Jersey Institute of Technology**  
**'2020 Vision' Financial Model - Executive Summary**  
**Potential Strategic Plan Funding - Including Proposed CRR Funding**  
**(\$'s In Millions)**

	<u>FY15</u> <u>Original</u> <u>Approved</u>	<u>FY15</u> <u>Mid-Year</u> <u>Adjusted</u>	<u>FY16</u> <u>Budget</u> <u>Projection</u>	<u>FY17</u> <u>Budget</u> <u>Projection</u>	<u>FY18</u> <u>Budget</u> <u>Projection</u>	<u>FY19</u> <u>Budget</u> <u>Projection</u>	<u>FY20</u> <u>Budget</u> <u>Projection</u>
<b>I. Base Strategic Fund Revenues</b>							
Base Tuition & Required Fee Revenue	152.0	152.0	164.8	173.6	184.6	195.0	205.0
Enrollment Growth Impact	4.3	7.7	3.9	5.7	4.9	4.1	4.3
Tuition & Fee Rate Impact	4.2	5.0	5.0	5.3	5.6	5.9	6.7
<b>Subtotal - Tuition &amp; Required Fees</b>	<b>160.5</b>	<b>164.8</b>	<b>173.6</b>	<b>184.6</b>	<b>195.0</b>	<b>205.0</b>	<b>216.0</b>
State Appropriations - Base	37.7	37.7	37.7	37.7	37.7	37.7	37.7
State Appropriations - Fringes	52.3	52.3	54.9	56.0	57.2	58.4	59.6
All Other	37.0	37.4	38.7	40.5	42.3	44.4	46.1
<b>Total Revenues</b>	<b>287.5</b>	<b>292.1</b>	<b>304.9</b>	<b>318.8</b>	<b>332.3</b>	<b>345.6</b>	<b>359.5</b>
<b>II. Strategic Fund Uses</b>							
Debt Service	19.2	19.7	18.8	18.8	22.7	24.0	22.8
Transfer to Plant (CRR) Base	9.1	10.0	10.0	10.0	10.0	10.0	10.0
<i>From Base Strategic Plan Financial Model (1)</i>			0.5	1.0	1.6	2.2	2.8
<i>From Added Strategic Plan Financial Funds</i>			2.2	5.0	3.6	5.0	8.0
<b>Total CRR (3)</b>			<b>12.7</b>	<b>16.0</b>	<b>15.2</b>	<b>17.2</b>	<b>20.8 (2)</b>
Information Systems & Technology Fund	1.3	1.3	1.4	1.5	1.6	1.7	1.7
All Other Operating Expenses	257.9	261.1	268.6	274.7	281.2	287.9	294.9
<b>Total Uses</b>	<b>287.5</b>	<b>292.1</b>	<b>301.5</b>	<b>311.0</b>	<b>320.7</b>	<b>330.8</b>	<b>340.2</b>
<b>III. Net Available for Strategic Plan After Added CRR</b>	<b>-</b>	<b>-</b>	<b>3.4</b>	<b>7.8</b>	<b>11.6</b>	<b>14.8</b>	<b>19.3</b>
<b>IV. Strategic Plan Fund Allocation</b>							
Added Annual CRR \$			2.2	5.0	3.6	5.0	8.0
Annual '2020 Vision' \$ - All Other	7.8	7.8	3.4	7.8	11.6	14.8	19.3
<b>Annual Investment</b>	<b>7.8</b>	<b>7.8</b>	<b>5.6</b>	<b>12.8</b>	<b>15.2</b>	<b>19.8</b>	<b>27.3</b>
<b>Cumulative Investment</b>	<b>7.8</b>	<b>7.8</b>	<b>13.4</b>	<b>26.2</b>	<b>41.4</b>	<b>61.2</b>	<b>88.5</b>

(1) FY2016 - FY2020 includes an annual 5% base increases for CRR.

(2) To create a \$25 million CRR recurring budget, the University Fee increase would need to be 7.5% for FY20-FY22.

(3) The CRR budget includes new construction, facility and grounds renewal, and standard instructional and non-instructional equipment.

*2020 Vision Investments to Date*

*2020 Vision* strategies guide the collaborative annual budget development process. All new budget requests submitted by the vice presidents include a report of the strategic use of the previous year's funds and identify relevant priorities, tactics, and KPIs for the new requests. NJIT invested a cumulative total of \$47.18 million in strategic priorities between FY 2015 and FY 2017. The investments support the *2020 Vision* goals of increased enrollment and greater student selectivity, a focus on student success, investment in faculty, improving student/faculty ratios, and reinvestigating research through new and renovated facilities.

Table 6.2 – 2020 Vision Investments to Date FY 2015 – FY 2017

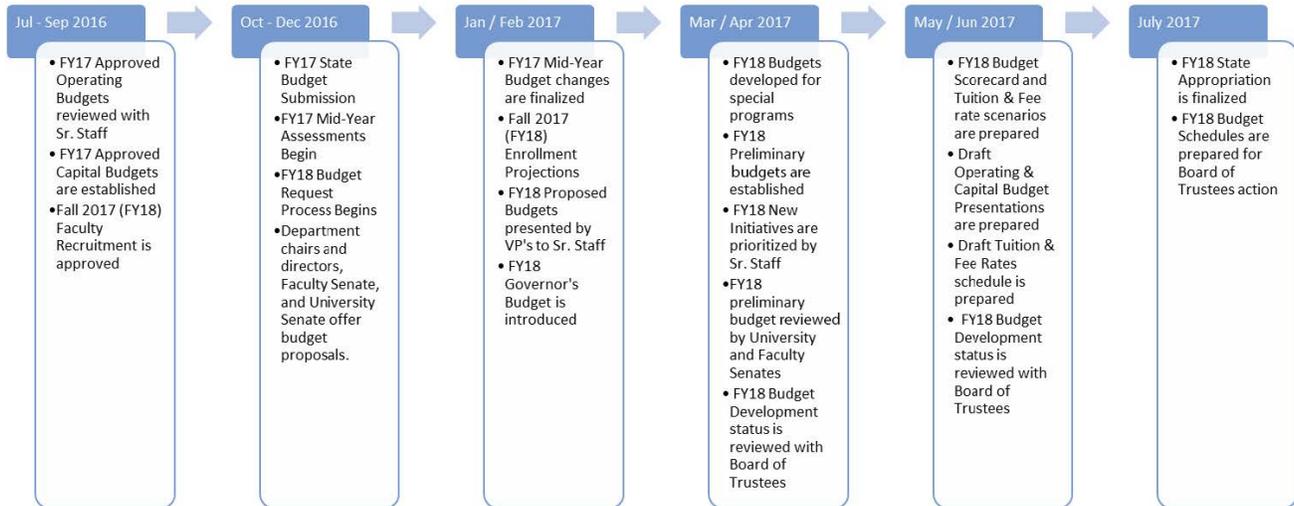
2020 Vision Investments to Date				
	FY 2015	FY 2016	FY 2017	FY15 - FY17
Strategic Priority	Annual Spending	Annual Spending	Annual Spending	Cumulative Spending
1 - Students	4,353	6,030	6,030	16,413
2 - Learning	138	1,140	1,140	2,418
3 - Scholarly Research	670	714	714	2,098
4 - Community	545	794	794	2,133
5 - Investments	2,074	5,172	6,706	13,952
6 - Annual 'Vision 2020' Priorities				-
<b>Total Strategic Priorities Funding</b>	<b>7,780</b>	<b>13,850</b>	<b>15,384</b>	<b>37,014</b>
<b>Total CRR Funding</b>	<b>1,420</b>	<b>2,722</b>	<b>6,024</b>	<b>10,166</b>
<b>Total '2020 Vision' Annual Funding</b>	<b>9,200</b>	<b>16,572</b>	<b>21,408</b>	<b>47,180</b>

### 2020 Vision Budgeting Process

A detailed roadmap guiding resource investment is essential to keeping NJIT on track to reach all milestones and goals set by *2020 Vision*. Therefore, funding for plan implementation strategies and tactics is tied directly to the annual budget development process. Every department offers budget proposals during the fall and winter. The University and Faculty Senate committees for planning and budget also contribute budget proposals through the shared governance process. Each division aggregates proposals and justifies each item with reference to the specific planning objective it advances. Investments in the plan are then prioritized, reviewed for effectiveness, and funded to the extent resources are available. When the university cannot fund tactics by a special allocation of *2020 Vision* restricted funds, the reallocation of existing resources supports plan implementation initiatives.

In the current year, with the tightening of available resources from the state and lower enrollment growth than anticipated, certain *2020 Vision* objectives were given highest priority. For example, the administration decided to protect all faculty renewal funding and honored all anticipated hiring commitments. As a consequence, numerous other objectives lost funding or received less than the requested amount. The chart below shows the annual budget development process.

Figure 6.1 Budget Development Calendar



### Monitoring the Budget

Our online executive budget management system allows administrators to view the status of their respective budgets. These reports are updated daily through a seamless online reporting repository. The University Budget Office continuously analyzes revenues and expenses and updates senior management with monthly budget reports as well as during a formal budget review conducted mid-way through the fiscal year.

The university also monitors revenues continuously, with ongoing enrollment projections used to project tuition revenue. This monitoring occurs before the fall semester and then as an ongoing process throughout the fall semester. Again, spring tuition revenue is projected based on enrollment, and the Budget Office monitors actual revenue for the remainder of the year. Similar reports reflecting externally funded research expenditures and indirect cost recovery (ICR), state appropriations, and revenue generated by auxiliary operations such as residence halls are also monitored, with adjustments to expenditures made as possible or as necessary. Senior administrators routinely provide updates to the University and Faculty Senates and their responsible committees in the form of presentations with question and answer sessions.

## **2020 Vision Assessment**

Rigorous assessment is fundamental to the implementation of *2020 Vision*. The university assesses progress toward achieving the goals set in the plan through 44 KPIs. Each KPI has an established final target for 2020 and is reviewed annually to assess progress toward achieving the target. When a KPI lags expectations, the *2020 Vision* Steering Committee flags the area and reviews implementation strategies. The priority committees then develop proposals to improve strategies and tactics. These may entail development of different strategies or changes in the allocation of resources. For example, in FY 2016 it was determined that the KPI for pending patents had fallen sharply. In response, the Research Office developed new strategies for implementation. The new strategies required a reallocation of resources in the research area. Similarly, a deficit in the KPI for graduate applications in fall 2016 produced immediate changes in the recruitment process with concomitant adjustments in resource allocation. Conversely, when progress toward increasing applications far exceeded expectations, it was determined that the university should reallocate resources to other areas within admissions.

Assessment continues down to the level of individual tactics. Each tactic in *2020 Vision* is attached to an assessment strategy to provide an evaluation of its effectiveness. Many of these assessments are measures of progress toward implementation of the tactic. For example, to promote faculty diversity, the plan articulated a strategy to appoint faculty members as diversity liaisons in each college. The first measure of success in implementation was simply the number of diversity liaisons appointed. When the June 2016 *2020 Vision* implementation report revealed that progress toward the appointment of faculty diversity liaisons lagged, HR resources were reallocated to correct the problem.

In short, *2020 Vision* is an integrated plan under which resource allocation for plan-guided initiatives reflects assessment at all levels. When progress toward achieving KPI targets lags, strategies are reconsidered, and additional resources may be invested. When progress exceeds expectations, anticipated investments may be scaled back.

### *Planning, Budget, Assessment and Continuous Improvement*

The NJIT strategic planning process for *2020 Vision* links planning, budgeting, and assessment in a cycle of continuous improvement. The university's strategic plan emerged out of a detailed analysis of challenges and opportunities for NJIT conducted by a large segment of the university community. The university developed the plan's priorities and objectives in conjunction with a financial budget model combining enrollment trends and revenue needs to generate a projection of the financial resources available. After offices evaluate the success of implementation strategies and tactics, they use the results to refine and improve the strategic plan.

Figure 6.2 Planning and Budget for Continuous Improvement



With a final strategic plan and a strategic planning budget model, the implementation process began. Guided by the *2020 Vision* Steering Committee, five strategic priority committees developed specific tactics to achieve the objectives of *2020 Vision*. Each tactic included indicators and assessment criteria. Using these and 44 KPIs, the effectiveness of plan implementation is assessed overall, and at the level of individual tactics.

Every year, using the results of assessment, senior administrators reanalyze challenges and opportunities and make adjustments to the strategic plan. The five strategic priority committees then change strategies and tactics. As a result, the university reconsiders the allocation of resources dedicated to plan implementation through the budgeting process and then another cycle begins. Through this iterative process, NJIT continuously refines *2020 Vision* and improves the university.



