

JANUARY 2011

PHASE 3: SPACE NEEDS



FACILITIES MASTER PLAN

CAPITAL PLAN YEARS 2013 TO 2023
STATE UNIVERSITY CONSTRUCTION FUND & BINGHAMTON UNIVERSITY
SUCF PROJECT NUMBER 07839

PERKINS
+ WILL

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3.0 Introduction

Binghamton University is a public research University Center in the State University of New York (SUNY) system. The University includes six schools and offers comprehensive undergraduate and graduate programs in over 130 areas of study.

The University's 619-acre campus is located in Vestal, NY, in the Southern Tier region of Upstate New York. The University also includes a new downtown campus, as well as a number of smaller support facilities in the Southern Tier region.

The State University Construction Fund (SUCF) engaged Perkins+Will to conduct a Facilities Master Plan (FMP) report for the University. The intent of the FMP is to qualify and evaluate the University's existing facilities, and provide a plan for future capital projects to support the University's mission.

The study was initiated in January of 2010, and consists of five phases: Campus Profile, Assessment of Conditions, Analysis of Space Needs, Concept Alternatives, and Final Recommendation.

This report, Space Needs, is the third phase of five comprising the FMP. The document presents enrollment projections, a review of space guidelines, space utilization data, as well as analysis of existing space and future space need for the University. The detailed findings of this report inform the recommendations and plan proposals in Phases 4 and 5 of the FMP.

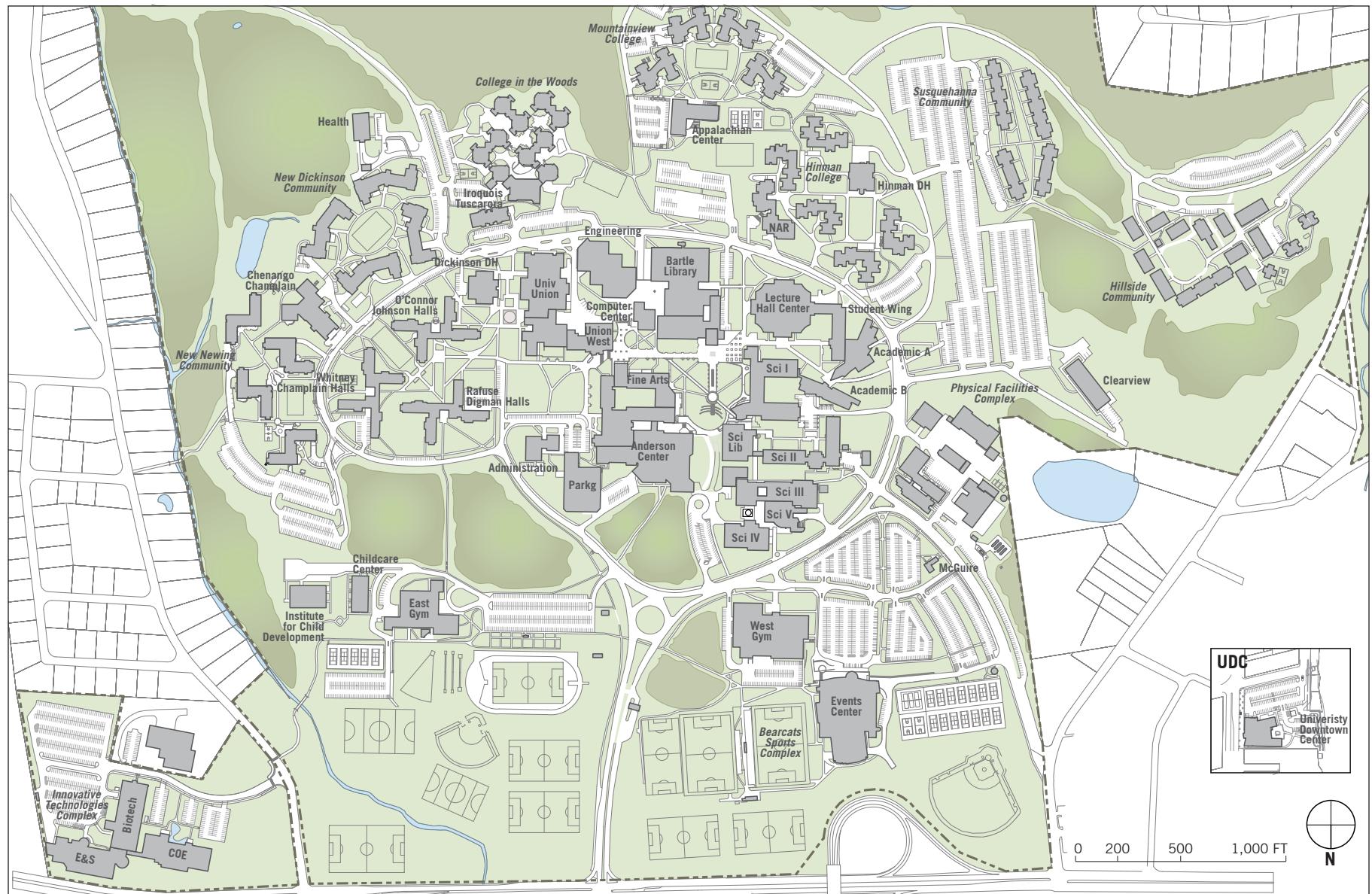


FIGURE 3.0A Binghamton University Existing Campus

3.1 Enrollment Projections

3.1.1 STATE DEMOGRAPHICS

STATEWIDE DEMOGRAPHIC SHIFT

As it draws nearly 75 percent of its total enrollment from New York State, Binghamton University's future enrollment is closely dependent on the state's demographic trends.

The total population for New York is projected to increase by seven percent from the last census in 2000 through 2025. This population growth is not distributed evenly throughout the state, but rather is concentrated in specific zones. Growth zones include the Capital Region, the Finger Lakes, the Hudson Valley, and Long Island. Most other zones, including the Southern Tier where Binghamton is located, are projected to experience a decline in population over the period.

As a whole, New York State faces an aging population. Over the period, the average age of a New Yorker is projected to increase by 2.6 years, from 36.4 to 39.0. The under 30-year-olds are considered to be a population-generating cohort, and negative growth often indicates longer-term population decline. While counties in and around New York City are projected to experience the highest growth rate in the under 30 cohort, nearly all counties in upstate New York are projected to experience a decline in the under 30 population.

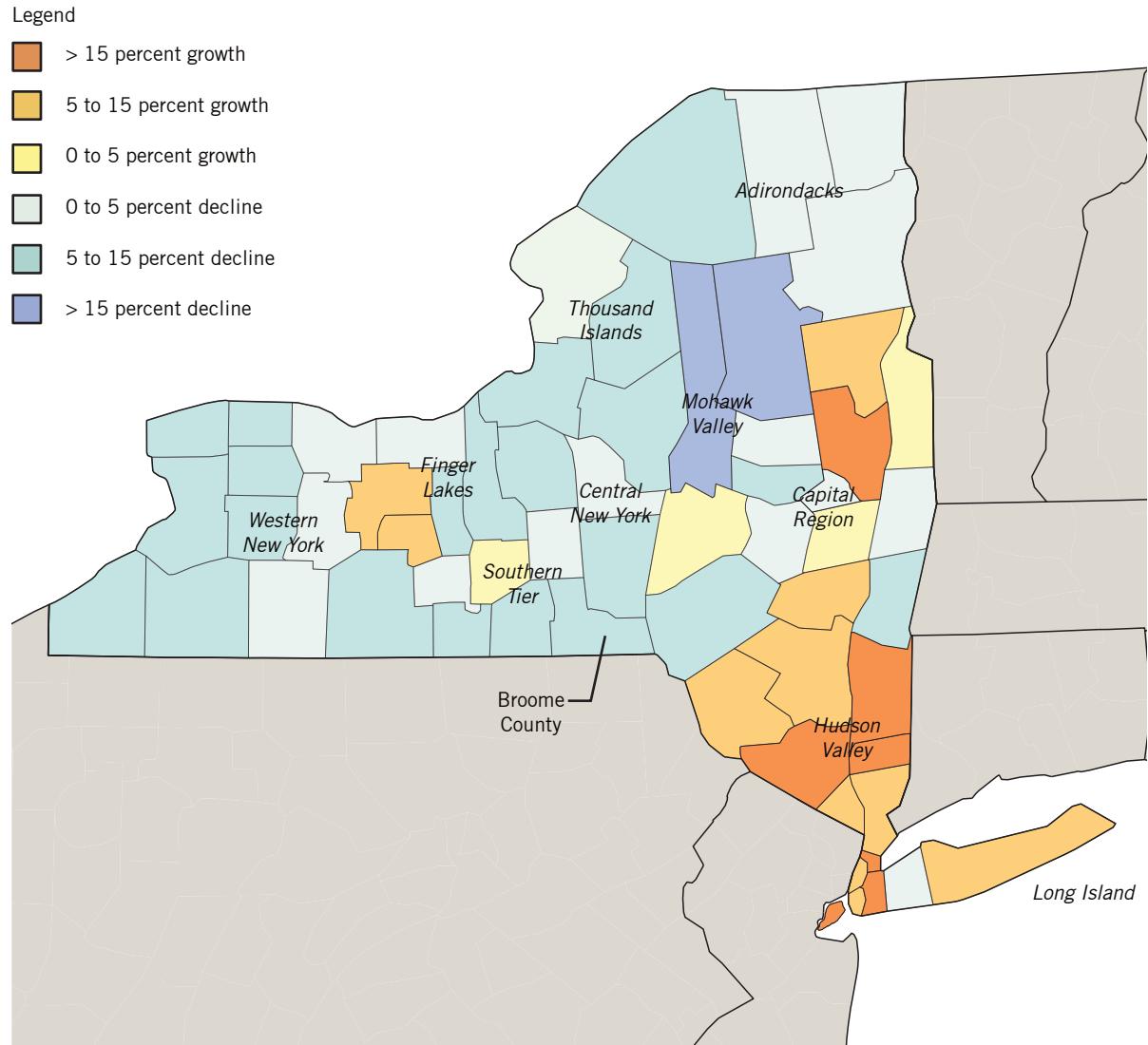


FIGURE 3.1.1A Percent Total Population Change by County, 2000 Census (Actual) to 2025 (Projected), Source: Cornell University Program on Applied Demographics (PAD)

IMPACT OF ECONOMIC DEVELOPMENT

Upstate New York has been heavily impacted by the country's overall shift toward a service and knowledge economy. The region was once a manufacturing center. Industry has suffered in the new economy, and alternative industries have been slow to take the place of traditional manufacturing. As a result there are fewer jobs in the upstate region. Seeking professional and social opportunities, young people native to the region and those educated upstate often leave for New York City or other locations out of the state. This trend is known as a geographic "brain drain," and accounts for the population shift projected for the region.

The State recognizes the need to retain and attract back educated individuals to upstate New York. It has established a number of incentives for locating business in the region. Particularly notable are the Empire State Development Centers of Excellence, which engage the State's premier institutions of higher education as catalysts for industry and economic growth. Six centers of excellence have been identified, each with a unique specialization. Binghamton features the Center of Excellence in Small Scale Systems Integration and Packaging (S3IP).

SUNY DEMOGRAPHICS

Institutions of higher education state-wide will be impacted by the declining demographics of college-aged individuals. In 2009, of the state's total first-time full time students SUNY captured 42 percent, CUNY 18 percent, independent institutions 34 percent, and proprietary institutions six percent (NY State Education Department). As high school graduate rates decline so will the number of first-time full time students. Institutions will be competing to maintain and expand their share of this pool of students.

The state's general geographic shift of population out of the upstate region to the greater New York City region may also impact higher education enrollment trends. Institutions located in areas of increasing population, especially in the under-30 year old cohort, will likely have a wider base of potential students. Additionally, institutions located further downstate, such as Binghamton University, may be in an advantageous situation to capture enrollment that exceeds the capacity of the region surrounding New York City.

BINGHAMTON UNIVERSITY DEMOGRAPHICS

Binghamton University is committed to providing a world-class education to a culturally and economically diverse student body. The institution's physical facilities must reflect this commitment and provide the physical setting to support students in their academic and social pursuits.

Space requirements do not adhere to a one-size-fits-all model; rather, each cohort of students has its own unique space needs. To ensure that facilities meet student needs, it is important to understand the University's enrollment profile as it currently exists and in the context of shifting regional demographics.

HOME ORIGIN OF STUDENT

Currently 73 percent of Binghamton University's headcount enrollment originates from within New York State. Of that, 18 percent comes from Broome County, where the University is located. Another 24 percent comes from Long Island's Nassau and Suffolk counties combined. The balance of the in-state enrollment originates from 23 other counties in the state, with a notable concentration from the counties in the greater New York City area.

The University's remaining enrollment consists of seven percent out-of-state United States students and 20 percent foreign students. For its out-of-state enrollment, Binghamton draws most heavily from New Jersey (48 percent of out-of-state U.S.) and Pennsylvania (12 percent of out-of-state U.S.).

The distribution of student home origin weighted toward the in-state population is not uncommon for an institution such as Binghamton. As a state institution, the University's primary responsibility is to educate students from New York. Like most state systems, the SUNY tuition structure demonstrates this intention by offering notably lower rates for New York State residents (\$4,970 in-state versus \$12,870 out-of-state and foreign for the Fall 2010 semester).

CENTER OF EXCELLENCE	AREA OF SPECIALIZATION
Albany	Nanoelectronics
Binghamton	Small Scale Systems Integration & Packaging (S3IP)
Buffalo	Bioinformatics & Life Science
Greater Rochester	Infotonics Technology Center (ITC)
Stony Brook	Wireless Information Technology
Syracuse	Environmental & Energy Systems

FIGURE 3.1.1B Empire State Development Centers of Excellence

3.1.2 HIGHER EDUCATION IN NEW YORK STATE

HIGH SCHOOL GRADUATE RATES

High school graduate rates provide indication of the number of potential students available for enrollment in institutions of higher education. This group enters as first-time full time students, a key component of an institution's total enrollment and a basis for returning enrollment.

In New York, the number of high school graduates is projected to decline by 16.5 percent over the ten years projection period from 2009 to 2019 (Source: NYSED ORIS).

In Broome County, the number of high school graduates is projected to decline by 20.4 percent by 2019. The State projects similar decline for neighboring counties, with as much as a 30 percent decline in adjacent Delaware County.

This overall decline of the number of young people in the coming years reduces the pool of potential students for in-state enrollment in SUNY, CUNY, independent, and proprietary institutions. To sustain future growth, Binghamton University must compete to maintain and expand its share of this pool of students.

COUNTY	% OF BU ENROLLMENT	PROJECTED CHANGE (NEXT 10 YRS)
Broome	17.9%	-20.4%
Nassau	14.3%	-14.6%
Suffolk	9.5%	-12.3%
TOTAL	41.7%	-13.8%

FIGURE 3.1.2A Top Contributing Counties to BU Enrollment and projected change in HS graduates over the next 10 years, Source: BU Office of Institutional Research and Assessment

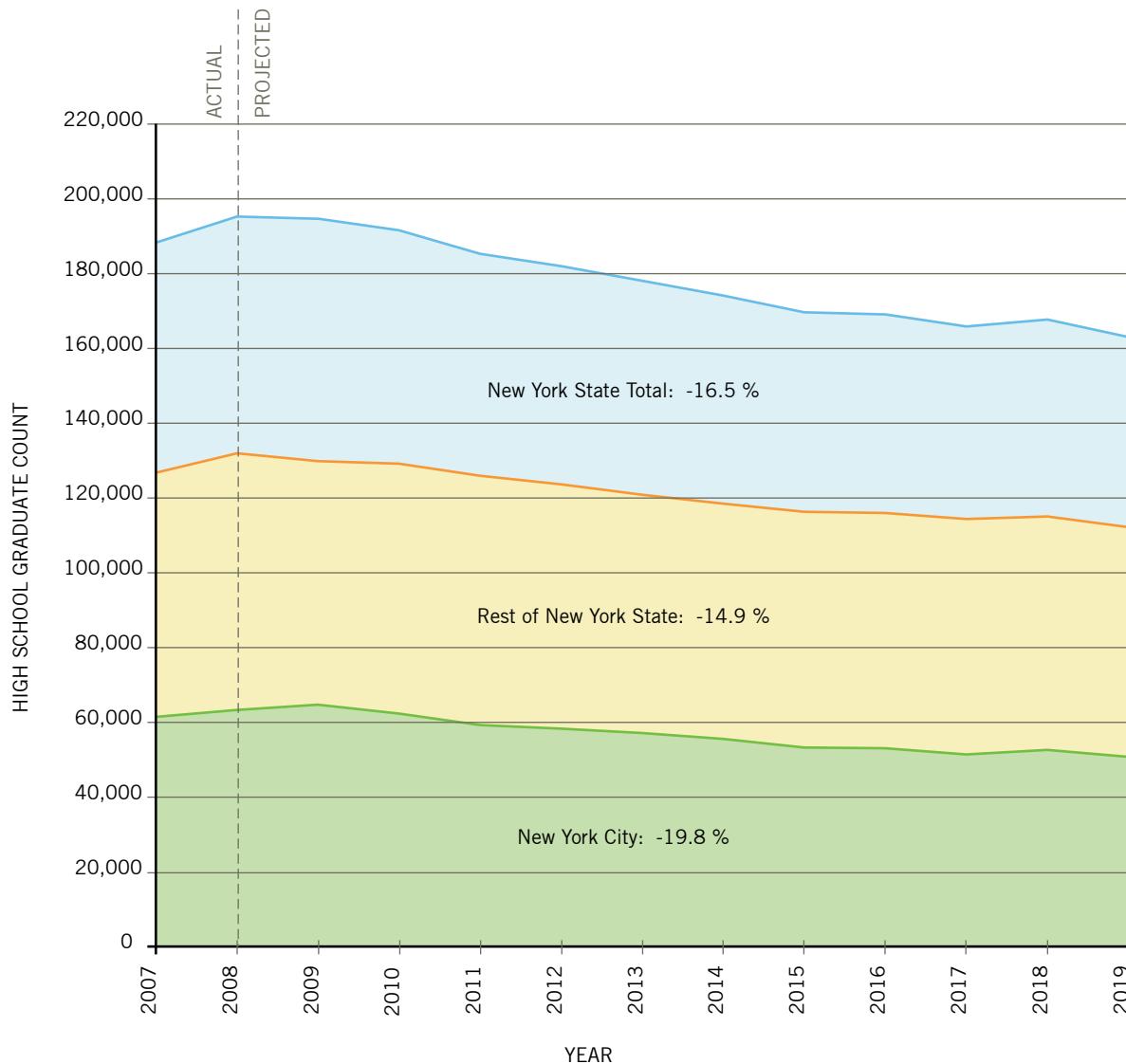


FIGURE 3.1.2B Graph of New York State High School Graduate Projections, Source: NYSED Office of Research and Information Systems

UNIVERSITY OF THE STATE OF NEW YORK SYSTEM

All colleges and Universities in New York are members of The University of the State of New York (USNY) system, an entity created in 1784 that includes all education in the state, public and private, prekindergarten to postdoctoral. The higher education portion of USNY includes 270 public, non-profit independent, and for-profit proprietary institutions. Binghamton University is a public sector institution. The public sector consists of the State University of New York (SUNY) and the City University of New York (CUNY) systems.

The public sector captures 58 percent of total state-wide enrollment, consisting of 37 percent in the SUNY system and 21 percent in the CUNY system. Of the remaining enrollment, independent institutions capture 38 percent and proprietary capture four percent.

In 2009, the SUNY system captured 64 percent of total public sector enrollment, with CUNY capturing the remaining 36 percent. The SUNY system has 64 campuses located throughout the state, and the CUNY system has 23 campuses dispersed throughout the five Boroughs of New York City.

Economic Trends Impacting Higher Education

Higher education admissions processes are occurring in a climate of economic uncertainty. A study conducted by the National Association for College Admission Counseling identified how the economy is shifting trends in high school students' college plans. Findings include:

- + An increase in students foregoing their "dream schools" in favor of more affordable options,
- + An increase in the number of students planning to enroll in public versus private institutions,
- + An increase in the number of students planning to enroll in community colleges.
- + And an increase in returning students/ or people looking for a career change

CUNY System Opportunities

With its New York City location, the CUNY system may be in a position to increase its portion of total public sector enrollment. New York City is experiencing a steady increase in

its higher education student population, drawing local, state, national, and international students. Increasingly viewed as a "University town," New York City attracts students with its reputation as a center for finance, media, and culture. The many institutions of higher education, in turn, contribute to the City's reputation as a center for ideas and innovation.

As a public institution, CUNY's role within the New York City's higher education climate is to provide and affordable education for a high volume of students. Demand at CUNY institutions has been high. The system recently announced that it will enact an admissions waiting list for the first time in its history, indicating that it is near "at-capacity" status. This presents an opportunity for SUNY to capture a higher share of the enrollment.

SUNY Community Colleges

The SUNY system has two major divisions: state operated institutions (consisting of University Centers and other doctoral institutions, Comprehensive Colleges, and Colleges of Technology) and community colleges. Community colleges in New York State have become increasingly competitive with the state operated institutions. Historically, the state operated and community colleges split SUNY's catchment of first-time full time students roughly 50/50. In recent years, community colleges have pulled ahead to capture a majority share of this population, today nearly 60 percent. A number of factors contribute to the increase, including:

- + Extensive course offerings and even, in some cases, the additional of baccalaureate programs at community colleges, which allow them to compete directly with four-year institutions,
- + The expansion of campus facilities at community colleges to include student life amenities such as field houses and student unions as well as residence halls, heightening students' facility expectations,
- + Financing models that allow community colleges to charge back to the counties in which students reside, that when combined with campus housing availability transforms them to destination institutions.

These factors, when combined with their natural cost advantage, allow community colleges to provide an effective, subsidized first two years of an eventual baccalaureate degree

at a significant advantage over the state operated colleges. It is possible that community colleges may retain this larger market share as high school graduate rate demographics decline.

Opportunities for Enrollment Catchment

In the context of demographic and economic shifts, opportunities arise for enrollment catchment among the following student profiles:

- + Upper-division transfer students, particularly those who attended community colleges for their first two years and are seeking a bachelor's degree,
- + Students from downstate and the New York City region that CUNY is unable to accommodate due to capacity issues,
- + Students that may have sought a private school experience were it not for the current economic climate,
- + International students seeking a strong educational experience in the United States that provides excellent services to their population,
- + Returning students for continued emphasis on retaining the core existing BU student population.

3.1.3 SUNY IR PROJECTIONS FOR BU

SUNY projects an overall enrollment growth of six percent for Binghamton University through 2023. Total enrollment is projected to peak in 2013 and then steadily decline to a level modestly above existing.

Undergraduate enrollment is projected decline slightly, by one percent, through 2023. The projection follows a similar pattern as the total enrollment, with a peak in 2013 followed by a steady decline. Graduate level enrollment is projected to undergo significant 44 percent growth and account for the institution's overall growth.

YEAR	UNDERGRAD	GRAD	TOTAL
2008 (Actual)	12,135	2,590	14,725
2013	13,546	2,800	16,346
2018	12,239	3,193	15,432
2023	11,561	3,745	15,306

FIGURE 3.1.3A SUNY IR Projections for BU (FTE)

Source: SUNY IR Data

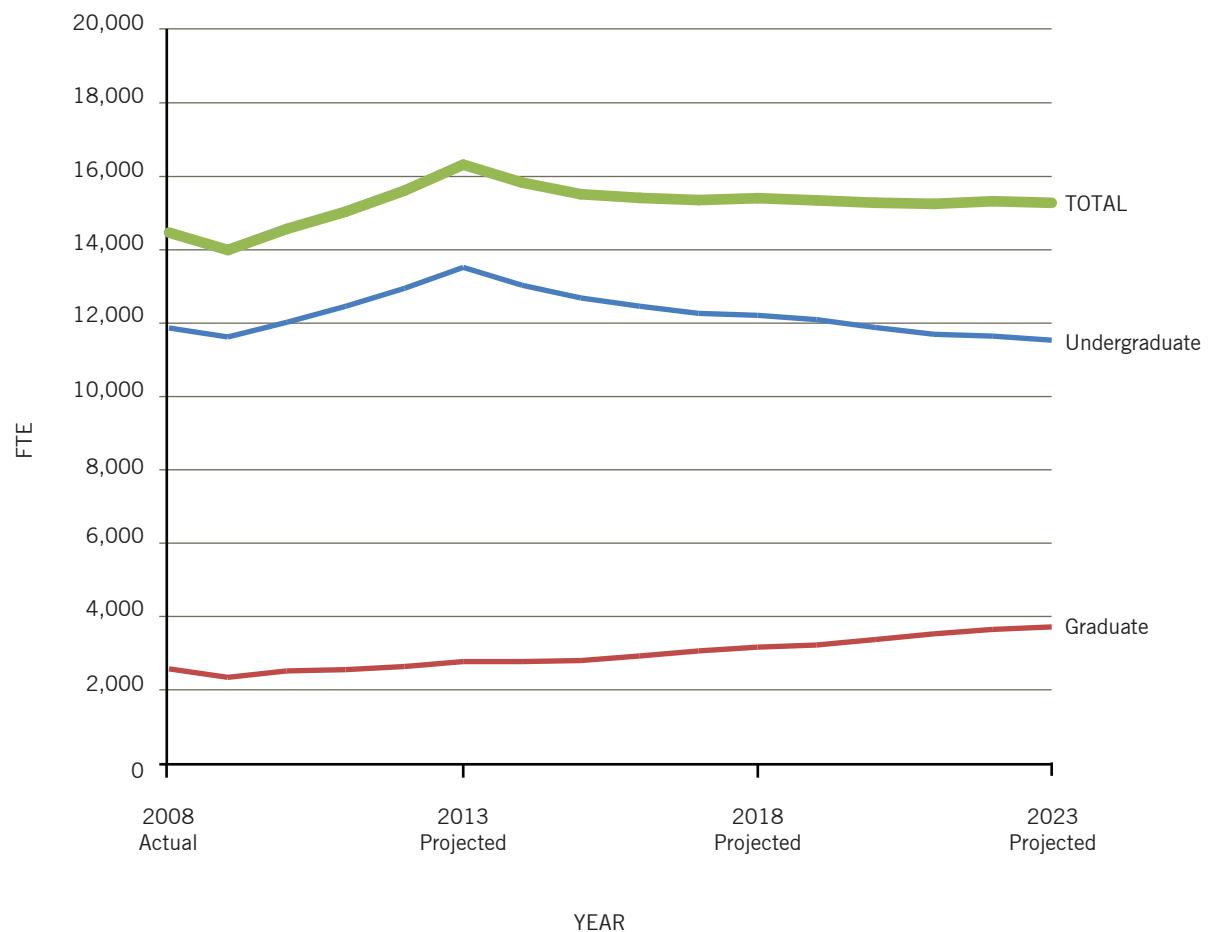


FIGURE 3.1.3B SUNY IR Projections for BU, Source: SUNY IR Data

3.1.4 CAMPUS PROJECTIONS

As a part of the FMP process, Binghamton University's Enrollment Management Group conducted enrollment analysis and issued a projections that reflect its vision for expansion through 2023.

STRATEGIC INITIATIVES AFFECTING ENROLLMENT

HARPUR COLLEGE: FINE ARTS DIVISION

The Fine Arts Division is projected to experience steady enrollment growth over the planning period, proportional to total growth at the Main campus.

The Division expects to maintain its current degree offerings, with undergraduate programs across all departments and graduate programs in Art History, Music and Theater with Art History as the only doctoral granting program. It will seek to create greater synergy among the departments and build on existing collaborations.

The Confucius Institute for Chinese Opera is one of only four specialized Confucius Institutes in the world and maintains strong collaborations with the Music, Theater and Asian and Asian American Studies departments.

The Music master's program in opera maintains a unique, long-standing collaboration with Tri-Cities Opera, enhancing the strength of the program and contributing to the regional arts community.

The Cinema program is one of the oldest in the US and is recognized for its commitment to cinema as an art form and the strong individual attention students receive.

HARPUR COLLEGE: HUMANITIES DIVISION

The Humanities Division is projected to experience steady enrollment growth over the planning period at a rate slightly above that of total growth at the Main campus. English, General Literature and Rhetoric is highlighted to drive more substantial FTE growth over the period, with growth predominantly at the undergraduate level.

The Humanities Division features the Philosophy, Politics and

Law (PPL) interdisciplinary program. This program is unique to BU and attracts strong students, most of whom are on a pre-law track and will be candidates to feed into the University's future Law School. The PPL program will drive demand for growth in the Philosophy department.

The division has strong programs in a wide range of world languages including, Arabic, Chinese, French, Hebrew, Hindi, German, Greek, Italian, Japanese, Korean, Latin, Russian, Spanish, Turkish, Vietnamese, and Yiddish. Binghamton is the only institution within the SUNY system to offer majors in Arabic and Russian.

The Institute for the Advanced Study of the Humanities (IASH) promotes faculty research, interdisciplinary collaboration and community outreach in the Humanities and Social Sciences.

The English, General Literature and Rhetoric department has strong programs at the undergraduate and graduate levels and a nationally renowned creative writing program. There are several nationally distinguished writers on the faculty.

The Center for Medieval and Early Renaissance Studies (CEMERS) is internationally recognized for its scholarship, programming and publications.

The Division is also considering additional interdisciplinary programs, such as a literature program that would draw on German, Russian, Romance Languages, and Africana studies, among others.

HARPUR COLLEGE: SCIENCE & MATHEMATICS DIVISION

The Science & Mathematics Division is projected to experience substantive growth over the planning period, however at a rate less than total growth at the Main campus.

The division has the largest undergraduate enrollment within Harpur and prepares large numbers of students for medical school and graduate education in mathematics and science. It, therefore, plays a leading role in meeting the growing demand for students with bachelors, masters, and doctoral level training in the STEM area.

The Psychology department's Behavioral Neuroscience program ranks among the top 10% of programs in the country and generates significant federal research funding.



Physics and Chemistry have strong research programs that include significant collaborations with the Watson School of Engineering through the Materials Science program where advanced research on alternative sources of energy is being conducted.

The Biology department has strong research programs focusing on cancer and biofilms research.

The division has unique programs that reach across the disciplines. The Anthropology department's master's program in Biomedical Anthropology supports teaching in forensics and prepares students for work in a wide variety of medical fields and industry. EVoS, the Evolutionary Studies program, is a unique interdisciplinary program with links to Biology, Anthropology, and other areas of the Humanities and Social Sciences.

A new research initiative, which will build on existing strengths in the broad area of health and wellness and strengthen ties with SUNY Upstate Medical Center promises to increase research focused on cancer and neuroscience.

HARPUR COLLEGE: SOCIAL SCIENCE DIVISION

The Social Science Division is projected to experience substantive enrollment growth over the planning period, however at a rate less than total growth at the Main campus.

The Division, which has grown rapidly during the past decade and enrolls the second largest number of majors within Harpur, features strong, well-enrolled undergraduate programs, and doctoral programs in Anthropology, History and Political Science that rank in the top 20% of PhD programs in the nation for their discipline. Sociology and Economics also support strong doctoral programs.

The Public Archaeology Facility (PAF) is a significant research center that collaborates with state and local governments and industry to conduct archaeological impact studies for construction projects. The center will drive growth in Anthropology.

The Fernand Braudel Center is world renowned for promoting high quality, innovative interdisciplinary research in the social sciences with a focus on world historical systems.

The Geography department has significant expertise and visibility in applied geographical research that contributes to

the work of local, state, and national governments and industry. The department supports a state of the art GIS core facility.

Economics boasts strengths in labor economics and environmental economics.

WATSON SCHOOL OF ENGINEERING

The Thomas J. Watson School of Engineering is projected to experience steady growth over the planning period, proportional to the total growth at the Main Campus.

At the undergraduate level, the Thomas J. Watson School of Engineering will retain all six existing majors leading to Bachelor of Science degrees. The Engineering Design program, which serves as the foundation to all engineering programs, will expand its focus on collaborative student work, and will need increased access to shop and lab spaces. At all levels of the curriculum, there is a need for design and project space that fosters teamwork.

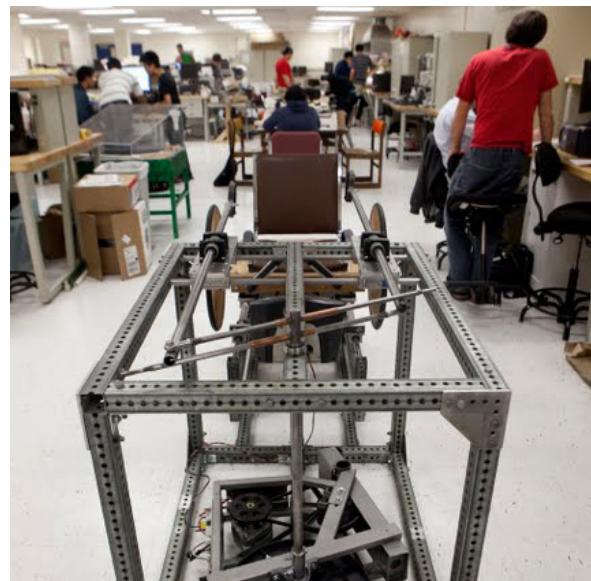
The Watson School anticipates an increase in research and graduate level programs, particularly PhD programs. All departments are seeking to make their graduate programs more PhD intensive.

SCHOOL OF EDUCATION

The School of Education is projected to experience significant growth over the planning period, at a rate well above total growth for the Main Campus. Currently the School focuses on graduate education. It intends to continue its existing graduate and postgraduate components, and anticipates a future increased demand for evening courses.

The School of Education currently offers no undergraduate degree programs, however it is considering creation of a minor in Education for undergraduate students to build on existing undergraduate offerings. The minor would serve as a feeder into the graduate programs for students interested in education. Until further definition, the minor is not reflected enrollment projections, but if implemented may significantly increase undergraduate FTEs.

The School is currently pursuing an external graduate education program in New Orleans, which will be delivered through a combination of off-site, in-person and synchronous distance learning methods. This program is not anticipated to drive FTE



growth at the Main Campus, but will have associated faculty and distance learning facilities needs.

SCHOOL OF MANAGEMENT

The School of Management is projected to experience substantive growth over the planning period, however at a rate less than total growth at the Main Campus. The School is currently ranked in the top 50 business schools and the top 12 public business schools in the nation. In order to continue to compete in that milieu, it intends to balance enrollment growth with access to facilities and faculty lines.

At the undergraduate level, the School of Management intends to maintain its current BS offerings, with curriculum in nine focus areas.

At the graduate level, the School currently offers both a Master of Business Administration and a Master of Science in Accounting. The MBA program was recently reduced in size to allow resources to be shifted to the MSA. The School offers a number of tracks for students to approach the MBA program, including: a fast-track MBA offered to Harpur College of Arts and Sciences or Thomas J. Watson School of Engineering students to complete an MBA in one year; executive MBA programs both at the Main Campus and off-campus in New York City; and a professional MBA program offered in New York City.

In addition, the School of Management features a specialized executive MBA program with a health care concentration for students with a clinical background. The executive MBA program with health care concentration has not been offered as a stand-alone program for several semesters but is offered as a track in the EMBA program. The school also offers an executive education program at Price Waterhouse Coopers, delivered at their facility in New York City; a program with Lockheed Martin delivered both at their facility and on campus; and doctoral programs linked to Syracuse University and University at Buffalo.

SCHOOL OF NURSING

The Decker School of Nursing is projected to experience steady enrollment growth over the planning period, proportional to total growth at the Main Campus. The School notes the importance of balancing enrollment growth with the provision of faculty and facilities resources to maintain its high-quality

programs. It anticipates transition to more simulation and diagnostic environments and future tightening of credential requirements, given research indicating that better nurses yield better patient outcomes. These factors will further emphasize the need for resources to support enrollment growth.

At the undergraduate level, the School plans to continue to build programs on sophomore transfer students and admit only a small number of freshman students. Enrollment in the Registered Nurse to Bachelor of Science program, which is built on students with an associates degree that have completed clinical requirements, is anticipated to increase.

At the graduate level, the School plans to continue the Master of Science programs with majors in family nursing, community health nursing, psychiatric mental health, or gerontological nursing and the PhD in nursing with a focus on rural health. During the next 2-5 years the existing masters nurse practitioner and clinical nurse specialist programs will transition to the Doctor of Nursing Practice level (DNP). The post masters DNP program initiated in 2010 is expected to expand. Concentrations at the masters level are available in disaster preparedness, rural nursing, and forensics with a palliative care concentration pending approval. The existing educator and administrator components of the masters programs are planned to continue with expansion of the educator component. The Post masters Nurse Educator Certificate Program is also projected to expand.

The School of Nursing currently offers the only post-graduate program in the nation that focuses on rural health. It plans to continue this area of specialization and intends transition it to an online program with a summer residency in order to better reach interested rural populations.

COLLEGE OF COMMUNITY AND PUBLIC AFFAIRS

The College of Community and Public Affairs is located off of the main campus, in the University Downtown Center in downtown Binghamton. It is projected to experience steady enrollment growth over the planning period, however at a rate less than the University total.

The College currently offers an undergraduate program in Human Development and graduate programs in Public Administration, Social Work, and Student Affairs Administration. It intends to maintain these programs. At the graduate level, joint programming and synergies exist between

Public Administration, Social Work, and the Decker School of Nursing. Students are also offered fast-track programs and certificate options.

The College contains unique internship and field education programs, which actively engage the greater community. These programs are option for undergraduate students, and required for all CCPA students.

In the future, the College intends to initiate a series of PhD programs that foster interdisciplinary collaboration between its existing departments. The PhD program is intended to have designated faculty and resources.



CAMPUS ENROLLMENT PROJECTIONS

As a part of the FMP process, Binghamton University's Enrollment Management Group conducted enrollment analysis and issued a projections that reflect its vision for expansion through 2023.

The campus projects an overall enrollment growth of 54 percent, or approximately 8,000 FTEs, through 2023. The campus anticipates continual growth throughout the planning period of 2013 to 2023.

The campus projects undergraduate enrollment to grow by 47 percent and graduate level enrollment to increase by a substantive 89 percent. Given these figures, the campus projects that undergraduate enrollment will account for about 78 percent of its total enrollment growth, with graduate enrollment accounting for the remaining 22 percent. This will shift the University's balance of undergraduate to graduate students slightly from its current ratio of 82:18 to a ratio of 78:22.

YEAR	UNDERGRAD	GRAD	TOTAL
2009 (Actual)	12,135	2,590	14,725
2013	13,205	2,823	16,028
2018	14,933	4,280	19,213
2023	17,829	4,902	22,731

FIGURE 3.1.4A Binghamton Enrollment Projections (FTE), Source: Enrollment Management Group Enrollment Projections

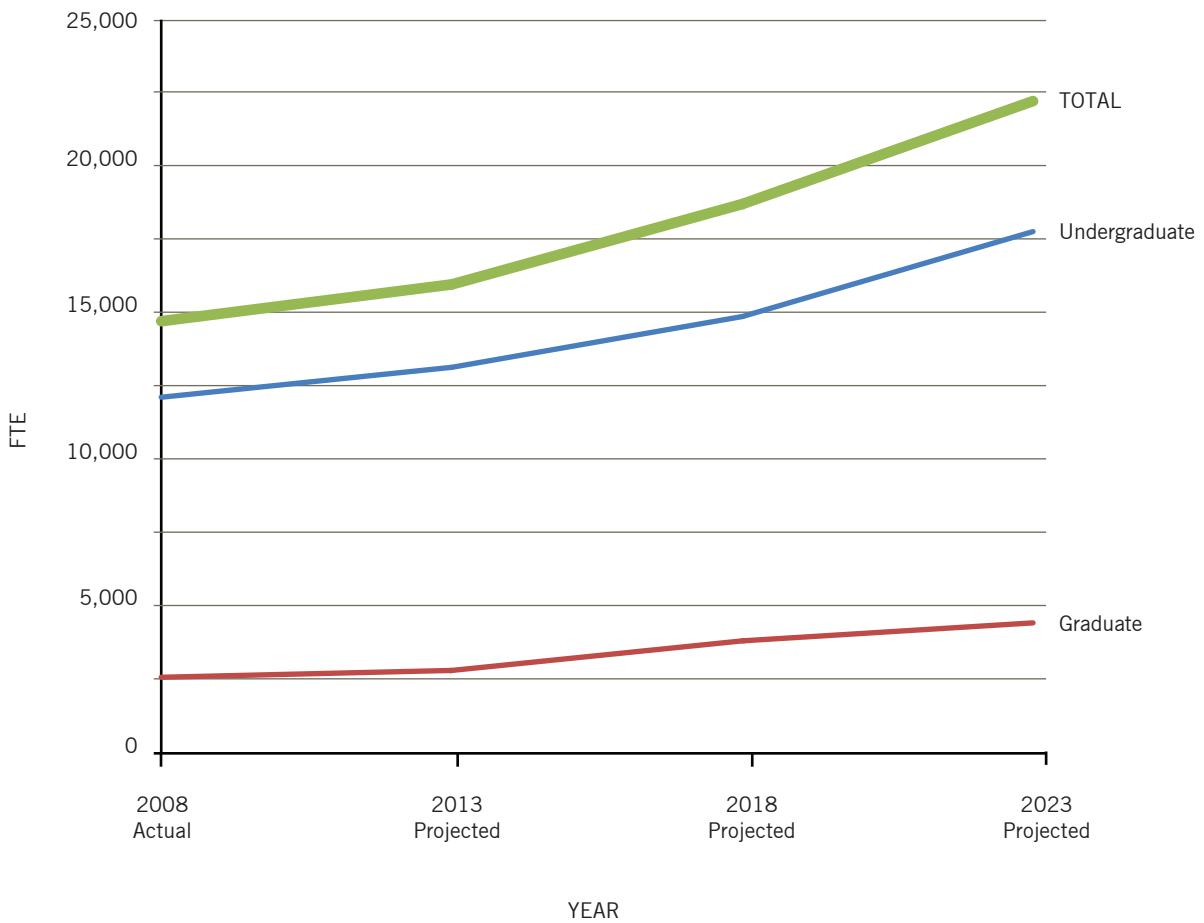


FIGURE 3.1.4B Binghamton Enrollment Projections (FTE), Source: Enrollment Management Group Enrollment Projections

DIVISION	2009 (ACTUAL)	2013	2018	2023	% INCREASE
Vestal Campus	14,192	14,423	17,901	21,273	+50%
Harpur College - Fine Arts Division	939	1,005	1,149	1,368	46%
Harpur College - Humanities Division	2,521	2,737	3,165	3,757	49%
Harpur College - Science & Mathematics Division	3,517	3,776	4,349	5,169	47%
Harpur College - Social Sciences Division	2,792	3,035	3,550	4,199	50%
Harpur College - Non-Divisional / Undeclared	128	145	167	199	55%
School of Education	291	301	391	457	57%
School of Engineering	1,499	1,664	1,886	2,288	53%
School of Management	1,383	1,561	1,824	2,179	58%
School of Nursing	402	422	541	616	53%
Non-Major / Non-Matriculated	719	777	879	1,051	46%
Downtown Campus	534	605	742	888	+66%
College of Community and Public Affairs	534	605	742	888	66%
Other Location (Law School)	N/A	N/A	570	570	N/A
Law School	N/A	N/A	570	570	N/A
TOTAL ENROLLMENT	14,725	16,028	19,213	22,731	+54%

FIGURE 3.1.4C Binghamton Enrollment Projections (FTE) by School and Location, Source: Enrollment Management Group
Enrollment Projections (*Locations based on existing program location)

3.1.5 INSTRUCTIONAL STAFFING PROJECTIONS

In addition to student FTEs, instructional staffing plays a key role in the assessment of space needs for a university. Instructional staffing requirements are informed by departmental student FTEs and the associated WSCHs.

An instructional staffing model determines a total staff FTE requirement. The total is comprised of a blend of full-time faculty, part-time faculty, adjunct lectures, professors emeritus, technical specialists, graduate student lecturers, and administrative assistant support staff.

The chart to the right summarizes total instructional staff FTEs requirements projected for BU's academic schools and divisions.

SCHOOL OR DIVISION	2009 ACT	2013 PROJ	2018 PROJ	2023 PROJ	% INC
Main Campus	821	899	1,073	1,271	55%
Harpur College: Fine Arts Division	58	63	72	85	46%
Harpur College: Humanities Division	144	164	192	227	57%
Harpur College: Science & Mathematics Division	198	217	262	307	55%
Harpur College: Social Sciences Division	164	180	220	257	57%
School of Education	28	29	38	44	56%
Thomas J. Watson School of Engineering	122	137	156	193	59%
School of Management	63	61	71	87	37%
Decker School of Nursing	44	48	63	71	62%
Downtown Campus	35	39	46	53	63%
College of Community and Public Affairs	35	39	46	53	63%
TOTAL INSTRUCTIONAL STAFF FTE	856	938	1120	1324	55%

FIGURE 3.1.5A Target Instructional Staff FTE Composition

Full-Time Faculty Projections

Full-time faculty are an important component in the long-term success of an institution academic programming. Full-time positions consist of full-time tenure-track faculty, visiting faculty, and full-time lecturers.

The FMP assumes a metric 70 percent of all instructional staff FTEs to be provided by full-time positions. This metric is employed throughout the assessment, with the exception of instances where a unique figure was provided by the University.

The adjacent chart summarizes total full-time lines for BU's academic schools and divisions.

SCHOOL OR DIVISION	2009 ACT	2009 NEED	2013 PROJ	2018 PROJ	2023 PROJ	% INC
Main Campus	588	632	670	769	905	54%
Harpur College: Fine Arts Division	37	41	44	48	56	51%
Harpur College: Humanities Division	107	118	129	145	170	59%
Harpur College: Science & Mathematics Division	129	144	156	184	215	67%
Harpur College: Social Sciences Division	121	126	131	154	180	49%
School of Education	19	20	20	27	31	63%
Thomas J. Watson School of Engineering	85	91	100	113	139	64%
School of Management	45	47	45	53	65	44%
Decker School of Nursing	45	45	45	45	49	9%
Downtown Campus	22	25	27	32	36	64%
College of Community and Public Affairs	22	25	27	32	36	64%
TOTAL FACULTY	610	657	697	832	972	59%

FIGURE 3.1.5B Target Full-Time Faculty Composition

3.2 Space Guidelines

3.2.1 STRUCTURE OF THE SUNY GUIDELINES

The SUNY Space Guidelines, dating from the 1960s and early 1970s, represented the state-of-the-art in space management at the time. During that period, the system's major capitalization phase, the guidelines provided a methodology for allocating resources both across the system and within an individual campus.

The SUNY guidelines project space requirements using one of three approaches: space factors, FTE-based models, and equivalency with existing space.

SPACE FACTORS

This approach allocates resources based on an institution's student and faculty FTEs and is employed to determine requirements for instruction and research space. Overall space requirements are derived using the following data sets: student FTE projections, the campus' actual inventory as reported in the Physical Space Inventory (PSI), student contact hours from the course schedule, and a space factor.

SUNY guidelines incorporate both a space factor, designating ASF per station, and a design guideline, which includes the station and shared departmental space square footage. For example, the space standard for a faculty office is 120 ASF and the space factor is 160 ASF, with the additional 40 ASF accounting for support staff, conference and work areas, and intra-departmental circulation.

FTE-BASED MODELS

This approach allocates space based on an institution's student and faculty FTE range and is used to determine requirements for the categories of: assembly and exhibition, building services, central services, data and resources center, general administration, instructional resources, libraries, physical education, student health services, and student faculty activities. Space requirements are determined using a programming metric established by SUCF for each category.

Specialized categories incorporate additional information, such as analysis of library volumes for libraries space.

EQUIVALENCY WITH EXISTING SPACE

This approach allocates a space requirement that is equivalent to the existing space reported in the PSI. It is employed for the categories of organized activities, organized research, and public service.

3.2.2 SHORTCOMINGS OF THE GUIDELINES

Certain elements of the SUNY guidelines are problematic for planning given the context in which they were created and the complexity of contemporary higher education. Specific areas of concern include the following:

1. The methodology of employing space factors for academic space needs projections
2. The values employed for certain FTE-based and percentage-based models for support space needs projections.

THE ISSUE OF SPACE FACTORS

SUNY's space factors are useful at the system-level for the early stages of project development to provide a "cost per square foot" model. They allow for development of basic square foot budgeting prior to contracting based on student FTEs. For example, SUCF could employ space factors to prepare a preliminary scope or space budget, establishing parameters for consultant teams to work within for space program development. The space factors are particularly effective when large-scale expansion is pursued, and less effective with small-scale expansion.

However, with mature campuses space factors become more problematic as these campuses often require a finer degree of analysis that the factors can provide. Capital projects at mature campuses often occur at reduced scales through local

renovations, infill additions, or single new buildings. These projects often contain a range of space types in smaller quantities, and as such it is difficult to allocate a specific student FTE, a key aspect with calculation by space factor.

Additionally, the space factors were generated in a different context than contemporary higher education institutions face. The factors reference a utilization standard that was determined over 40 years ago that makes assumptions about where instruction occurs that do not accurately represent the current activity of institutions.

Given these issues, the space factors simply do not provide enough precision for calculation of academic space needs. Specific shortcomings for general instruction space and departmental space are outlined below.

General Instruction Space. General instruction space is calculated using the space factor method. SUNY has established a space factor of 16 ASF per station for general instruction. Design guidelines, which include shared space, are 16 ASF per station for lecture halls and 20 ASF per station for classrooms.

These figures, derived over 30 years ago, assume general instruction to occur in compact lecture hall and tablet-armchair style spaces and do not meet the needs of today's instructional delivery methods. With pedagogy shifts, instruction in lecture halls and tablet armchair rooms requires more space, 18-21 ASF per station.

Pedagogy shifts also drive instruction to occur in different types of rooms, including rooms with tables and chairs, seminar rooms, and project-based learning rooms. These room typologies require between 21 and 28 ASF per station, well over the SUNY design guideline.

Departmental Space. Faculty office space requirements are derived using an FTE space factor, combined with a space standard that allocates ASF per workstation. SUNY's instructional space factor allocates 160 ASF per faculty FTE (FTEF), while the space standard for an individual faculty office is 120 ASF. The goal of the 160 ASF is to include not only the faculty office, but also space for support staff, conference and work areas, and intra-departmental circulation.

However, this last element, intra-departmental circulation, is not effectively addressed in the space factor in instances when departmental offices/space does not open directly onto public corridors. The reporting of space for indirect cost recovery (ICR) requires that the PSI conform to the Postsecondary Education Facilities Inventory and Classification Manual (FICM). To achieve this compliance in these cases, the inventory procedure must include intra-departmental circulation within the departmental ASF. The 160 ASF space factor, while adequate for the office and ancillary uses, does not provide sufficient space for intra-departmental circulation. The alternative assessment uses a space factor of 180 ASF to model department space.

FTE-BASED AND PERCENTAGE-BASED MODELS

The SUNY guidelines employ FTE-based and percentage-based models to project space needs in a number of support space categories. Factors employed in these models were developed over 40 years ago. Some still serve as a good representation of space needs, however some are no longer valid. Of particular concern are the following:

Data Processing. The guidelines allocate a flat quantity of ASF for data processing space, also referred to as information technology space, based on an institution's type and student FTE. Due to the time period in which they were developed, the guidelines do not account for contemporary shifts and efficiencies gained in data processing equipment and operations and over-allocate facilities.

Libraries. The guidelines determine space needs for libraries as a sum of three factors: a space per volume calculation, a seating space calculation of 5.32 ASF per student FTE, and an administrative calculation of $0.25 \times (\text{seating} + \text{volume space})$. The guidelines size a library based on the assumption of it serving as a repository for books and physical collections, supported by a robust administrative staff. Since their establishment, libraries have undergone a significant shift and today are conceived of as an intellectual hub for information access through a variety of means, rather than a repository for collections. This shift has been driven by the advent of technology and resource limitations. It yields a net reduction in space needs for library functions compared with the SUNY guidelines and an entirely different distribution of that space.

Student Health Center. The guidelines allocate a flat quantity of ASF for a student health center based on an institution's type

and student FTE. The space allowance assumes the provision of a robust health center. Many institutions today, particularly the University Centers in the SUNY system, are located in close range of medical centers. As such, significantly less demand is placed on the on-campus student health center, resulting in reduced facilities demands.

General Administration. The guidelines allocate a rate of 8 ASF per student FTE for general administration functions for University Centers. Similarly to the provision on the academic side for departmental space and faculty offices, this figure is not robust enough to accommodate the full range of office and support functions that today's institutions require.

Central Services. The guidelines determine space needs for central services as a metric of 4 percent of the sum of other facilities categories (excluding central services and building services). This allocation is insufficient for contemporary institutions to support the full range of required buildings and grounds operation functions. A specific shortcoming is the provision of facilities for equipment and vehicle storage and maintenance, a particularly area of concern with electric and alternative fuel vehicles.

OBSOLESCENCE OF ANY SPACE GUIDELINE

It is important to note that all space guidelines obsolesce. This is not uncommon to hear, both from campuses and from SUCF program managers. The reality is that the factors obsolesce from the bottom-up. This means that while individual, more detailed space allocation figures may lose their meaning, the aggregate need of an institution will remain largely unchanged. It is often not the overall space need that is changing, but rather the distribution of that space. For example, if space need calculations based on the guidelines result in 150 ASF per student for an institution, it can be expected that the composition of that space will change over time. However, the total of 150 ASF will rarely change in a substantive way, and will continue to serve as a meaningful way to evaluate capital expenditures.

Often when pursuing new facilities that are unwarranted, institutions erroneously reference an obsolescence of the guidelines that assumes error in the larger numbers rather than the smaller numbers. The ability to recognize and implement constraints on the construction of new facilities is essential

to maintaining excellence across the building inventory, and should increasingly define what makes a "green" campus. Too often campuses pursue a continued expansion of facilities, in many cases emulating their more heavily endowed tier-one, private institutions, which typically have double the ASF per student FTE of SUNY institutions. By seeking to emulate institutions with substantially more resources, colleges expend beyond their capacity on a limited segment of their facilities, while starving other areas of quantity of space, adaptation, and modernization.

3.2.3 ALTERNATE ASSESSMENT

The alternate assessment for Binghamton University provides a higher degree of specificity for calculation of academic space needs, to more closely reflect the inherent complexities of higher education. The detail provided offers a deeper level of analysis compared with the SUNY guidelines that facilitates the development and later-stage management of future individual projects. It also more accurately reflects the location of instruction employed by today's pedagogy.

To that end, space factors play a diminutive role in the academic portion of the alternate assessment, providing corroborating evidence rather than serving as the primary driver of space needs. The assessment employs SUNY space standards and utilization based on contemporary instruction. For detailed methodology, refer to section 3.5.2 Consultant Methodology.

3.3 Space Utilization

3.3.1 CLASSROOM UTILIZATION

Classrooms represent about six percent of Binghamton University's facilities inventory, however are the location of approximately 80 percent of all instruction. Additionally, classrooms by nature are more resource efficient than class labs, their instructional counterparts, both in terms of space requirements and construction and maintenance costs. Due to the combination of these factors, an ideal classroom inventory is able to provide a high value at a modest resource investment.

Given aggressive enrollment targets, it is essential that BU maximize its existing inventory of classrooms and lecture spaces. The following classroom utilization analysis outlines the utilization performance of existing classrooms. Ultimately, the utilization data will inform the scope, nature, and prioritization of classroom-related projects in Phases 4 and 5 of the FMP.

CALCULATING UTILIZATION

Classroom utilization is calculated for PSI rooms coded as classrooms (space type 1001) and lecture halls (space type 1100). Classroom utilization is calculated using two metrics: utilization rate and fill rate. The ensuing analysis includes only general purpose classrooms that are centrally scheduled.

Utilization Rate. Utilization rate is a ratio of the total number of hours a classroom is scheduled per week over a target, which SUNY defines as 35.4 hours/week. The target utilization of 35.4 hours per week was increased by the State Department of Budget from the original SUNY standard of 30 hours per week based on the assumption that classrooms could be used in the evening as well as during the day. Utilization rate is calculated for each classroom, with an ideal utilization rate near 100 percent (with 100 percent representing 35.4 hours).

Fill Rate. Fill rate is a ratio of the number of students in a course section over the number of seats available in the classroom the section is scheduled in. SUNY defines a target fill rate of 80 percent. Fill rate is calculated for each course section, and may be averaged for each classroom to determine an average classroom fill rate.

In system-wide analysis, SUNY combines the utilization and fill rates to derive a weekly student contact hour (WSCH) goal. For classrooms, SUNY defines the WSCH goal of 28.32 hours per

station (the utilization rate of 35.4 multiplied by the fill rate of $0.80 = 28.32$). The chart below summarizes WSCH per station targets of different university systems.

The two-pronged utilization rate and fill rate approach to deriving the WSCH goal allows for more accurate analysis of classroom inventory across campus. Consider a situation involving a large lecture hall that is heavily scheduled, but scheduled with small section sizes. If analyzed only by number of scheduled hours, the lecture hall would appear effectively utilized. However, due to the small section sizes, the room performs poorly in terms of percent fill rate. Combining the two assessment methods allows for a more accurate portray of utilization.

INVENTORY AND CALCULATION METHODOLOGY

During the Fall 2009 semester, Binghamton University's inventory of general purpose, centrally allocated classrooms included 126 rooms, 115 located at the main campus and 11 located at the University Downtown Center.

The PSI for the Fall 2009 term coded 156 rooms in classroom space types (1001 as "Classrooms" and 1100 as "Lecture Halls"). Overlaying PSI and general purpose classroom data sets reveals that 30 classrooms from the PSI are not centrally allocated.

Additionally, courses for the Fall 2009 semester were scheduled in 23 rooms outside of the general purpose classrooms and PSI coded classrooms. These rooms are predominantly coded as departmental spaces, such as conference rooms.

The following calculations for classroom utilization and fill rate include only data sets for general purpose, centrally controlled classrooms (the base 126 rooms). This methodology reduces the impact of outlier and anomaly data for analysis that most closely reflects experienced utilization.

Calculations are presented on the following pages organized as averages by classroom section-size tier and by building. The total quantity of rooms included and key data for both the Fall 2009 and Spring 2010 semesters are included for each component. Semester data consists of the following:

Average Hours per Week. This column presents the average hours per week that applicable rooms are scheduled. For example, the 16 rooms at the main campus that contain

0-20 seats collectively average 25 hours per week during the Fall 2009 semester. The target for values in this category is the SUNY target of 35.4 hours.

Average Utilization Rate. This column presents the average utilization rate across applicable rooms. Per the definition outlined above, the utilization rate is the ratio of the total number of hours a room is scheduled in a week over the SUNY target of 35.4 hours. The target for values in this category is 100 percent, which is equivalent to 35.4 hours.

Average Fill Rate. This column presents the average fill rate across applicable rooms. Per the definition outlined above, the fill rate is the ratio of the number of students in a course section over the number of seats available in the classroom the section is scheduled in. Figures in the chart represent an average of all applicable course section data. The target for values in this category is 80 percent, the SUNY fill rate target.

CLASSROOM UTILIZATION

Classrooms at Binghamton's main campus nearly meet target utilization figures, with an average utilization rate of 90 percent and an average fill rate of just over 70 percent for the Fall 2009 semester.

Due to its location away from the main campus and more limited program offerings, classrooms at the University Downtown Center are not as well utilized, with average utilization and fill rates right around 60 percent.

The reduced utilization away from the main campus is important to note for the University's future development. It can be expected that instructional space constructed away from the Brain area of the main campus in the future will experience utilization well below indicated targets.

SYSTEM	ADJUSTED HOURS	% USED	WSCH / STATION
SUNY	35.4 hours	80%	28.32
CUNY	30.0 hours	80%	24.00
California	53.0 hours	66%	35.00
Florida	40.0 hours	60%	24.00

FIGURE 3.3.1A SUNY Utilization Standards

CLASSROOM UTILIZATION BY CLASSROOM SECTION SIZE	QTY OF ROOMS	AVG HRS/WK FA 2009	AVG UTILIZ FA 2009	AVG FILL FA 2009	AVG HRS/WK SP 2010	AVG UTILIZ SP 2010	AVG FILL SP 2010
Main Campus	115	31	90%	71%	27	75%	72%
0-20 seats	16	25	72%	70%	18	51%	70%
20-32 seats	41	32	89%	75%	28	78%	74%
32-48 seats	12	39	109%	73%	30	85%	77%
48-75 seats	23	37	106%	64%	29	81%	66%
75-125 seats	16	20	57%	71%	36	74%	70%
125+ seats	7	38	107%	71%	30	84%	76%
Downtown	11	21	58%	61%	20	56%	58%
0-20 seats	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20-32 seats	6	22	61%	54%	23	65%	51%
32-48 seats	1	15	42%	48%	9	25%	46%
48-75 seats	4	20	57%	75%	17	49%	75%
75-125 seats	N/A	N/A	N/A	N/A	N/A	N/A	N/A
125+ seats	N/A	N/A	N/A	N/A	N/A	N/A	N/A
COMPOSITE	126	30	86%	71%	26	74%	71%
<i>Target</i>	N/A	35.4	100%	80%	35.4	100%	80%

FIGURE 3.3.1B Summary of classroom utilization rate and fill rate data by section size, Fall 2009 and Spring 2010. (Average utilization based on ratio of room hours scheduled to target of 35.4 hours; average fill rate based on ratio of actual enrollment to available station count, averaged over all courses in the schedule.)

CLASSROOM UTILIZATION BY BUILDING NAME	QTY OF ROOMS	AVG HRS/WK FA 2009	AVG UTILIZ FA 2009	AVG FILL FA 2009	AVG HRS/WK SP 2010	AVG UTILIZ SP 2010	AVG FILL SP 2010
Main Campus	115	31	89%	71%	27	75%	72%
Academic A	5	33	93%	63%	28	78%	74%
Academic B	2	27	77%	76%	26	74%	73%
Appalachian Collegiate Center	2	36	102%	61%	0	0%	76%
Engineering Building	5	44	125%	67%	28	79%	67%
Fine Arts Building	20	36	101%	68%	32	91%	70%
Lecture Hall Center	12	42	117%	72%	34	96%	74%
Library North	8	22	63%	73%	19	53%	78%
Nelson A. Rockefeller Center	4	33	94%	77%	32	89%	75%
Science I	3	28	80%	73%	16	45%	72%
Science II	13	36	101%	75%	29	82%	75%
Science Library	7	35	99%	67%	28	80%	68%
Student Wing	22	29	81%	73%	23	64%	74%
Tuscarora Office Building	2	22	61%	81%	17	49%	80%
University Union	10	10	29%	66%	25	72%	63%
Downtown	11	20	58%	61%	20	56%	58%
University Downtown Center	11	20	58%	61%	20	56%	58%
COMPOSITE	126	30	87%	71%	26	74%	
<i>Target</i>	<i>N/A</i>	<i>35.4</i>	<i>100%</i>	<i>80%</i>	<i>35.4</i>	<i>100%</i>	<i>80%</i>

FIGURE 3.3.1C Summary of classroom utilization rate and fill rate data by building, Fall 2009 and Spring 2010. (Average utilization based on ratio of room hours scheduled to target of 35.4 hours; average fill rate based on ratio of actual enrollment to available station count, averaged over all courses in the schedule.)

3.3.2 CLASS LAB UTILIZATION

Class labs represent about four percent of Binghamton University's facilities inventory, and are the location of about 20 percent of all instruction. By nature, class labs are more resource intensive than classrooms, both in terms of construction and maintenance costs. Due to the magnitude of facilities needs and the associated resource investment of class labs, it is important to maximize their utilization.

CALCULATING UTILIZATION

Class lab utilization is calculated for PSI rooms coded in the 1300-series, as class lab (1300), specialized class lab (1301) individual study lab (1302), tutorial lab wet (1303), tutorial lab (1304), individual project lab (1306). Class lab utilization is calculated in a similar method as classroom utilization using the metrics of utilization rate and fill rate.

Utilization Rate. Utilization rate is a ratio of the total number of hours a classroom is scheduled per week over a target, which SUNY defines as 28.32 hours/week. Utilization rate is calculated for each class lab, with an ideal utilization rate near 100 percent (with 100 percent representing 28.32 hours).

Fill rate. Fill rate is a ratio of the number of students in a course section over the number of seats available in the class lab the section is scheduled in. SUNY defines a target fill rate of 80 percent. Fill rate is calculated for each course section, and may be averaged for each class lab to determine an average class lab fill rate.

In system-wide analysis, SUNY combines the utilization and fill rates to derive a weekly student contact hour (WSCH) goal. For class labs, SUNY defines the WSCH goal of 22.66 hours per station (the utilization rate of 28.32 multiplied by the fill rate of $0.80 = 22.66$).

INVENTORY AND CALCULATION METHODOLOGY

The Fall 2009 PSI coded approximately 250 rooms in 1300-series space types. During the Fall 2009 semester, Binghamton University's course schedule assigned class lab functions to 88 of those rooms. Of the total, ten are computer labs and the remaining are a range of labs required to support academic programming.

Additionally, activity courses for the Fall 2009 semester were scheduled in 26 rooms outside of 1300-series space types.

The following calculations for class lab utilization and fill rate include only data sets 1300-series spaces.

Calculations are presented on the following pages organized as averages by space type and by building. Total quantity of rooms and key data are included for each component for both the Fall 2009 and Spring 2010 semesters. Semesters data consists of the following:

- + **Average Hours per Week.** This column presents the average hours per week that applicable rooms are scheduled. The target for values in this category is the SUNY target of 28.32 hours.
- + **Average Utilization Rate.** This column presents the average utilization rate across applicable rooms. Per the definition outlined above, the utilization rate is the ratio of the total number of hours a room is scheduled in a week over the SUNY target of 28.32 hours. The target for values in this category is 100 percent, which is equivalent to 28.32 hours.
- + **Average Fill Rate.** This column presents the average fill rate across applicable rooms. Per the definition outlined above, the fill rate is the ratio of the number of students in a course section over the number of seats available in the classroom the section is scheduled in. Figures in the chart represent an average of all applicable course section data. The target for values in this category is 80 percent, the SUNY fill rate target.

CLASS LAB UTILIZATION

Unlike classrooms which may be shared by multiple users, class labs are often specialized facilities with less consistent utilization. Unique labs must be available in an institution's inventory, even if to satisfy demand for only a single section. As a result of limited fungibility across academic departments, labs experience reduced overall demand for meeting utilization targets. Additionally, issues of curriculum design and faculty availability often place an uneven demand on class labs across the two academic calendar semesters.

Overall, Binghamton University experiences moderate utilization of class labs. Figures indicate that existing labs

are utilized to meet curriculum demands, and that many have excess capacity to support growth.

Labs functioning near capacity include the following:

- + Academic B: School of Nursing Learning Lab
- + Fine Arts Building: Art Studies Design Studio and Painting Studio; Theater Dance Studio
- + Bartle Library: General Use Computer Lab; Electrical and Computer Engineering General Instruction Labs
- + Science II: Chemistry General Lab and Organic Chemistry Labs
- + Sciences III: Anatomy and Physiology Lab; General Use Microcomputer Lab

SYSTEM	ADJUSTED HOURS	% USED	WSCH / STATION
SUNY	28.32 hours	80%	22.66
CUNY	24.00 hours	80%	19.20
California	27.5 hours	85%	23.38
Florida	24.00 hours	80%	19.20

FIGURE 3.3.2A SUNY Utilization Standards

CLASS LAB UTILIZATION BY SPACE TYPE	QTY OF ROOMS	AVG HRS/WK FA 2009	AVG UTILIZ FA 2009	AVG FILL FA 2009	AVG HRS/WK SP 2010	AVG UTILIZ SP 2010	AVG FILL SP 2010
Main Campus	87	15	52%	53%	15	52%	53%
1300: Class Lab	67	16	57%	58%	16	58%	59%
1301: Specialized Class Lab	7	1	4%	3%	4	4%	5%
1304: Tutorial Lab	11	19	67%	58%	14	48%	48%
1306: Individual Project Lab	2	0	0%	0%	6	22%	24%
Downtown	1	7	25%	30%	0	0%	0%
1300: Class Lab	1	7	25%	30%	0	0%	0%
COMPOSITE	88	15	52%	52%	14	51%	52%
<i>Target</i>	N/A	28.3	100%	80%	28.3	100%	80%

FIGURE 3.3.2B Summary of class lab utilization rate and fill rate data by space type, Fall 2009 and Spring 2010. (Average utilization based on ratio of room hours scheduled to target of 28.3 hours; average fill rate based on ratio of actual enrollment to available station count, averaged over all courses in the schedule.)

CLASS LAB UTILIZATION BY BUILDING NAME	QTY OF ROOMS	AVG HRS/WK FA 2009	AVG UTILIZ FA 2009	AVG FILL FA 2009	AVG HRS/WK SP 2010	AVG UTILIZ SP 2010	AVG FILL SP 2010
Main Campus	87	15	52%	53%	15	52%	53%
Academic A	3	23	82%	56%	21	73%	66%
Academic B	1	54	191%	95%	4	13%	6%
Biotechnology Building	2	11	40%	12%	0	0%	0%
Champlain Hall	1	5	16%	8%	3	11%	6%
Engineering Building	3	6	21%	41%	14	49%	35%
Fine Arts Building	26	14	51%	33%	14	50%	37%
Library North	9	15	54%	71%	18	63%	97%
Science I	9	8	29%	33%	12	44%	38%
Science II	18	20	69%	95%	19	68%	79%
Science III	12	12	43%	47%	12	43%	52%
Student Wing	3	12	42%	22%	10	34%	11%
Downtown	1	7	25%	30%	0	0%	0%
University Downtown Ctr	1	7	25%	30%	0	0%	0%
COMPOSITE	88	15	52%	52%	14	51%	52%
<i>Target</i>	<i>N/A</i>	<i>28.3</i>	<i>100%</i>	<i>80%</i>	<i>28.3</i>	<i>100%</i>	<i>80%</i>

FIGURE 3.3.2C Summary of class lab utilization rate and fill rate data by building, Fall 2009 and Spring 2010. (Average utilization based on ratio of room hours scheduled to target of 28.3 hours; average fill rate based on ratio of actual enrollment to available station count, averaged over all courses in the schedule.)

3.4 Existing Space

3.4.1 OVERVIEW OF EXISTING SPACE

The quantitative space needs assessment of the FMP is rooted in numerical calculations that reference Binghamton University's Fall 2009 PSI. The inventory reports a total of 1.86 million assignable square feet, distributed across three main locations: the main campus in Vestal, the downtown campus, and other off campus locations. The chart below summarizes the 2009 inventory.

ADJUSTMENTS TO THE PSI

To ensure the validity and utility of FMP recommendations, analysis must reference an accurate PSI document. To this end, the space needs assessment for BU makes the following adjustments to the PSI:

- + **Student Recreation.** Student recreation facilities in the East Gym are re-coded from Student Faculty Activity recreation space to Health and Physical Education recreation space to more closely reflect the intent of the classification system. The Student Faculty Activity recreation category is intended for the type of recreation space that exists in the University Union, such as general purpose fitness rooms, billiards and game rooms, TV rooms, etc. The types of spaces present in the East Gym include gymnasia, basketball courts, indoor swimming pools, etc. These spaces correspond with Health and Physical Education recreation, which includes facilities for intercollegiate, intramural, physical education, and recreation.
- + **Research Units.** FMP analysis makes an adjustment to the PSI classification for research space. Binghamton University is unique within the SUNY University Centers in its reporting of research space. The original inventory bifurcates each academic department to separate out research space into a series of organized research units. This has the effect of double counting some departmental space allocations based on a given quantity of faculty, graduate, and post-doctoral units. To more closely align analysis of existing space with space assessment projections, research space that is core to departmental operation is allocated to the individual departments.

- + **Departmental Storage.** FMP analysis adjusts the classification of departmental storage space. Much of this space type is currently assigned to the general Building Services category, inflating totals. To more closely reflect the intent of the classification system, departmental storage for instruction, research, or administration is assigned to individual departments.

CAMPUS LOCATION	2009 ASF
Main Campus	1,751,455
Active Space	1,722,567
Inactive Space	28,888
Downtown	36,921
Active Space	36,921
Inactive Space	0
Off Campus	72,518
Active Space	60,853
Inactive Space	11,665
TOTAL	1,860,894

FIGURE 3.4.1A Existing Inventory by Location and Active or Inactive, Fall 2009 PSI

3.4.2 BENCHMARKING EXISTING SPACE

Benchmarking is a tool utilized to conduct overview evaluation of space from a quantitative standpoint. By evaluating Binghamton University against comparable or peer institutions, benchmarking offers a general indication of whether facilities are appropriate, inadequate, or overbuilt.

Benchmarking is reported as a ratio of total ASF per student average annual FTE (AAFTE). AAFTE enrollment figures are calculated by averaging FTE data for all academic terms of the regular academic year. The use of AAFTE across the system for purposes of benchmarking allow for more accurate comparison between campuses.

Binghamton University's AAFTE for 2009 is 14,075, in contrast to the Fall 2009 semester FTE of 14,725. As a result, calculation of space per student FTE yields the figure of 133 with use of AAFTE.

It is important to note that as benchmarking analysis is derived from totals for square footage and FTE figures, it is a highly simplified form of analysis. Often it does not account for irregularities affecting an institution's space inventory, such as the specialized facilities to support particular degree programs or the existence of multiple campuses, which necessitated duplication of core services. Additionally, this high level assessment does not drill down to nuances of the appropriateness of an institution's inventory.

Benchmarking of existing space at Binghamton University is presented to the right. The University is evaluated against the University Centers and Comprehensive Colleges in the SUNY system. Data for the University Centers includes all reported inventory and has not been discounted for multiple campuses, specialized programming, or the presence of hospitals.

Total instructional ASF per student AAFTE at each University Center's main campus is presented at the bottom of the adjacent chart. Calculations were derived by discounting all facilities located off of the main campus.

Facilities benchmarking reveals that Binghamton University is operating a level of ASF per AAFTE significantly less than other SUNY institutions, particularly among the University Centers.

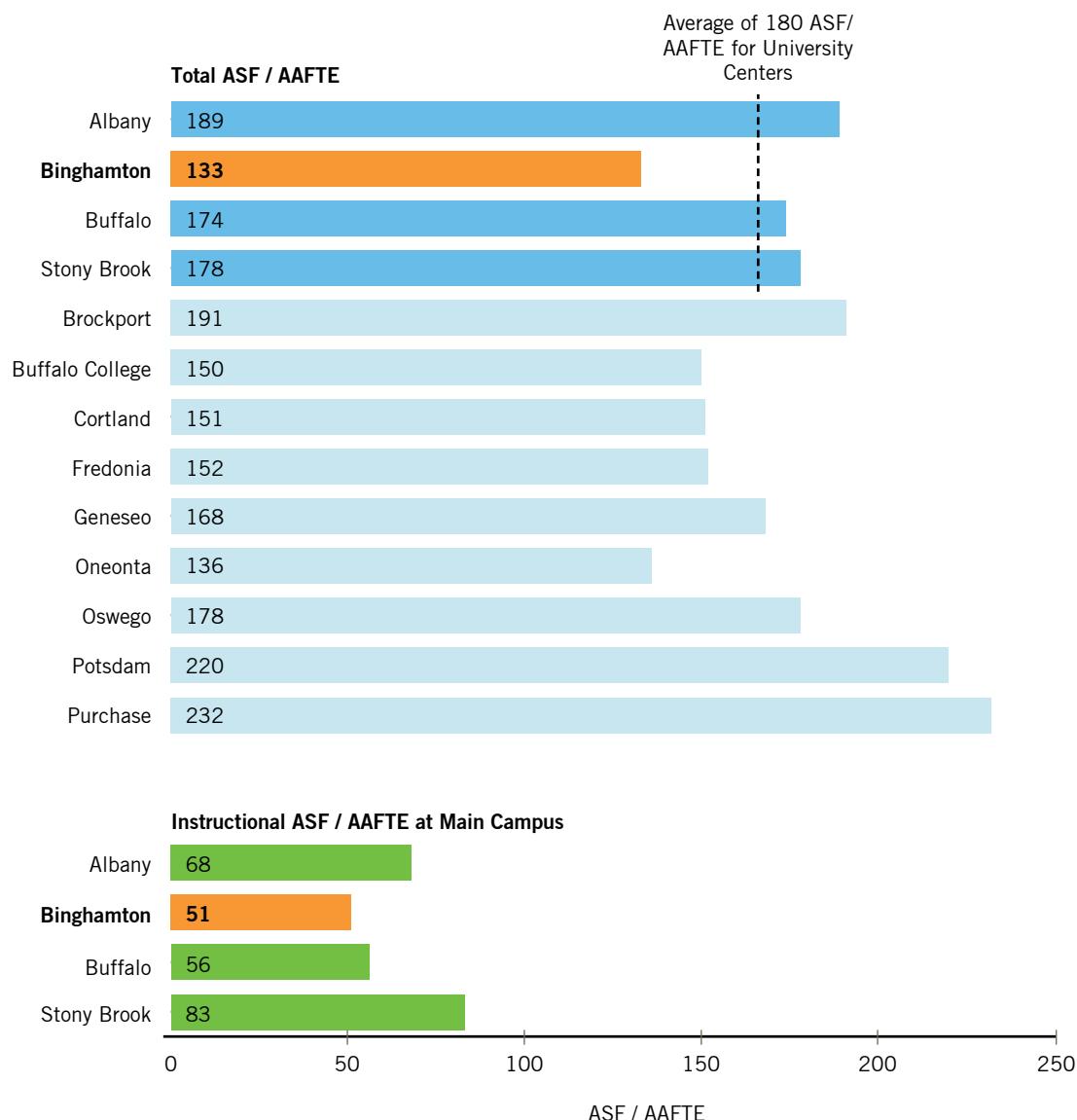


FIGURE 3.4.2A Benchmarking of Existing Space, Fall 2009 PSI

3.4.3 2009 INVENTORY BY BUILDING

The chart to the right reports Binghamton University's 2009 inventory based on building location. Building inventories are arranged and sub-total based on major functions.

BUILDING NAME	2009 ASF
Academic, Research, Library Buildings	1,237,583
Academic Complex Building A	44,866
Academic Complex Building B	34,793
Bartle Library	336,264
Clearview Hall	12,540
Engineering Building	86,158
Fine Arts Building & Anderson Center	162,186
Institute for Child Development	13,347
ITC Biotechnology Building	70,800
Lecture Hall Center / Student Wing	90,243
Outdoor Biology Research Facility	580
Science I	62,375
Science II	99,184
Science III	98,443
Science IV	40,974
Science Library	47,909
University Downtown Center	36,921
Administration Service Buildings	60,828
Computer Center	21,247
Couper Administration Building	37,926
McGuire Building	1,655

FIGURE 3.4.3A Existing Space by Building, Fall 2009 PSI

BUILDING NAME	2009 ASF
Student Activity and Service Buildings	191,422
Appalachian Center (Non-Food Service)	5,432
Childcare Building	8,740
Dickinson DH (Non-Food Service)	1,703
Emergency Vehicle Garage	1,081
Health Service	10,958
Hinman DH (Non-Food Service)	2,549
Iroquois Tuscarora (Non-Food Service)	8,595
Nelson A. Rockefeller Center	7,151
University Union	88,936
University Union West	56,277
Athletic, Recreation, HWS Buildings	242,806
East Gym	48,009
Event Center	100,869
Physical Education Storage Facility	504
Pollard Memorial	151
Public Restroom Facility	52
Track Press Box	168
West Gym	93,053

BUILDING NAME	2009 ASF
Campus Service Buildings	55,737
Central Heating Plant	280
Chem Rad Storage	1,361
Commissary	14,753
Garage	6,702
Information Booth	225
Paid Parking Booth	42
Parking Structure	133
Physical Facilities	10,169
Physical Facilities North	14,066
Warehouse	8,006
Off Campus Facilities	72,518
Art Factory	3,446
Commerce Road Building	29,239
Endicott Interconnect 258	10,510
Remote Library Stack Facility	29,323
TOTAL 2009 ASF	1,860,894

3.4.4 2009 INVENTORY BY FUNCTION

The chart to the right reports Binghamton University's 2009 inventory according to function categories predetermined by the SUNY system.

FUNCTION CATEGORY	2009 ASF
Instructional Space	561,361
Classrooms & Computer Labs	111,667
Instructional Department Facilities	449,694
Support Space	1,258,980
Organized Activity Units	70,691
Organized Research Units	186,972
Public Service Units	16,959
Assembly And Exhibition	15,983
Electronic Data Processing	22,801
Health & Physical Education	229,757
Instructional Resources	14,750
Libraries	267,664
Student & Faculty Activities	125,765
Student Health Services	7,652
General Administration	145,714
Maintenance & Operations Central Services	84,930
Building Services	69,342
Other Space	40,553
Inactive Space	40,553
TOTAL ASF	1,860,894

FIGURE 3.4.4A Existing Space Use by Function, Fall 2009 PSI

3.4.5 INVENTORY CHANGE

The FMP plans for development at Binghamton University during the two capital funding periods 2013 to 2018 and 2018 to 2023. To accurately assess future space needs against the University's existing array of spaces, changes to the inventory must be accounted for.

The 2009 PSI is impacted by several known projects prior to the initiation of the FMP planning period in 2013, including construction of Science V, construction of ITC Engineering & Science, construction of ITC Center of Excellence, and conversion of Johnson Hall from residential space to academic and support space.

As summarized in the adjacent diagram, these projects increase the University's total ASF to 2.03 million by 2013.

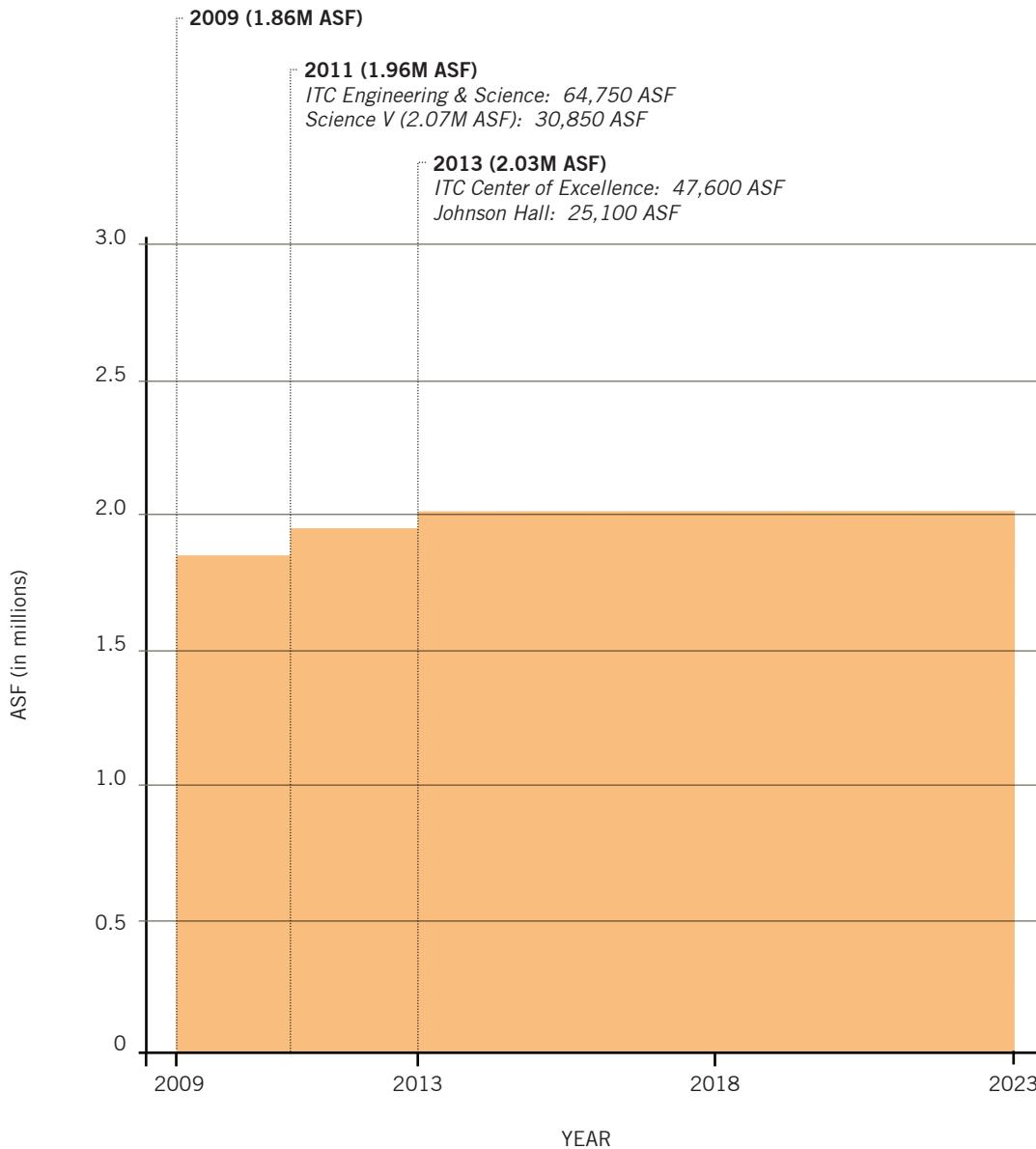


FIGURE 3.4.5A Inventory Change through 2013

3.5 Space Needs

3.5.1 OVERVIEW OF SPACE NEEDS

THE ROLE OF A SPACE NEEDS ASSESSMENT

Effective space planning models an institution's facilities requirements with consideration for mission, programmatic direction, student enrollment projections, instructional staffing models, and current inventory distribution. Findings are summarized in a space needs assessment, which outlines the facilities that are required for an institution to its support existing and future population and program distribution. The assessment serves as an important tool for the institution and state funding agency to model, prioritize, and develop capital budgets for future facilities use.

The following section outlines the space needs assessment for Binghamton University in two parts, a SUNY assessment of overall need and an alternate assessment of overall need. The SUNY assessment calculates need based on the SUNY guidelines methodology, presented in section 3.2 Space Guidelines; the alternate assessment calculates need based on a modified set of parameters, outlined in the following section 3.5.2 Consultant Methodology.

The space needs assessment represents a snapshot of current and future departmental needs based on projections and the planning context at the time of its creation. It is intended to function as a modeling tool for to aid Binghamton University and the SUCF in its space planning and capital budgeting. The assessment is not intended to replace future detailed program studies or the programming phase associated with the capital projects identified in the FMP. Additionally, the numbers presented in the assessment do not represent SUCF-prescribed allocations.

The space needs assessment outlines existing facilities requirements given the University's reported 2009 population and projected facilities requirements for the two capital funding cycles 2013 to 2018 and 2018 to 2023.

FACILITIES EFFICIENCY

At a macro-level, Binghamton University operates at a level

of assignable square footage per student FTE significantly less than other SUNY institutions, particularly among the University Centers. As reported in section 3.4.2 Benchmarking of Existing Space, in 2009 BU reported a total of 133 ASF per student AAFTF campus-wide, compared with an average of 180 ASF per FTE among the other three University Centers. This indicates that BU functions at a highly efficient level, occupying approximately 25 percent less space per student FTE than its system peers.

Further analysis demonstrates that Binghamton University functions at a greater degree of facilities efficiency during the Fall semester, the academic term with the greatest demand. During Fall 2009, the University operated at a composite figure of 126 ASF per student FTE. The main campus in Vestal is the location of nearly 95 percent of total facilities, and operates at 123 ASF per student FTE. Due to limited academic programming, the University's secondary location at the University Downtown Center operates at 69 ASF per student FTE.

MAGNITUDE OF SPACE NEEDS AT BU

Binghamton University faces a significant magnitude of need through the planning period. The SUNY assessment indicates a campus-wide need of 2.1 million ASF in 2013 and 2.6 million ASF in 2023. The alternate assessment indicates a more substantive need of 2.3 million ASF in 2013 and 2.9 million ASF in 2023.

ORGANIZATION OF THE PROJECTIONS

Academic versus Support Space. A facilities inventory for an institution of higher education is comprised of two main components: academic space and support space. Academic space includes all classrooms and labs where instruction occurs, departmental office facilities, and research facilities. Support space includes shared auxiliary facilities required on a campus to support the daily lives of the campus community, such as libraries, student and faculty activity space, student services, administrative services, athletic and recreation space, campus services, and building services.

Binghamton University's 2009 inventory reports a ratio of

38 percent academic space to 62 percent support space, an expected proportion for a residential university of its size and type.

The space needs assessment projects this ratio to shift toward the academic side for 45 percent academic space and 55 percent support space. As the University's population grows, a more linear increase in academic space will be required to support the campus population. Assuming the continued concentration of programming at the main campus, efficiency will be gained on the support space side.

Planning Horizons. Due to the magnitude of enrollment growth and associated space needs, it is important for the FMP to prioritize overall need when sequencing the capital projects in Phases 4 and 5. This will ensure that the correct types of facilities are provided early in the plan, facilities growth in University-identified strategic programs and catalyzing future cycles of renovation.

To aid in prioritization, space needs are separated into two planning horizons: a near-term Building Capacity Period followed by a long-term Sustained Growth Period.

The Building Capacity Period address space needs associated with growth through 2018. The period achieves the two-fold purpose of redressing existing facilities capacity and condition issues while also aligning overall facilities provision with the University's revised academic and strategic mission.

The Sustained Growth Period builds on the foundation of the Building Capacity Period, achieving additional facilities capacity to support additional enrollment growth through 2023.

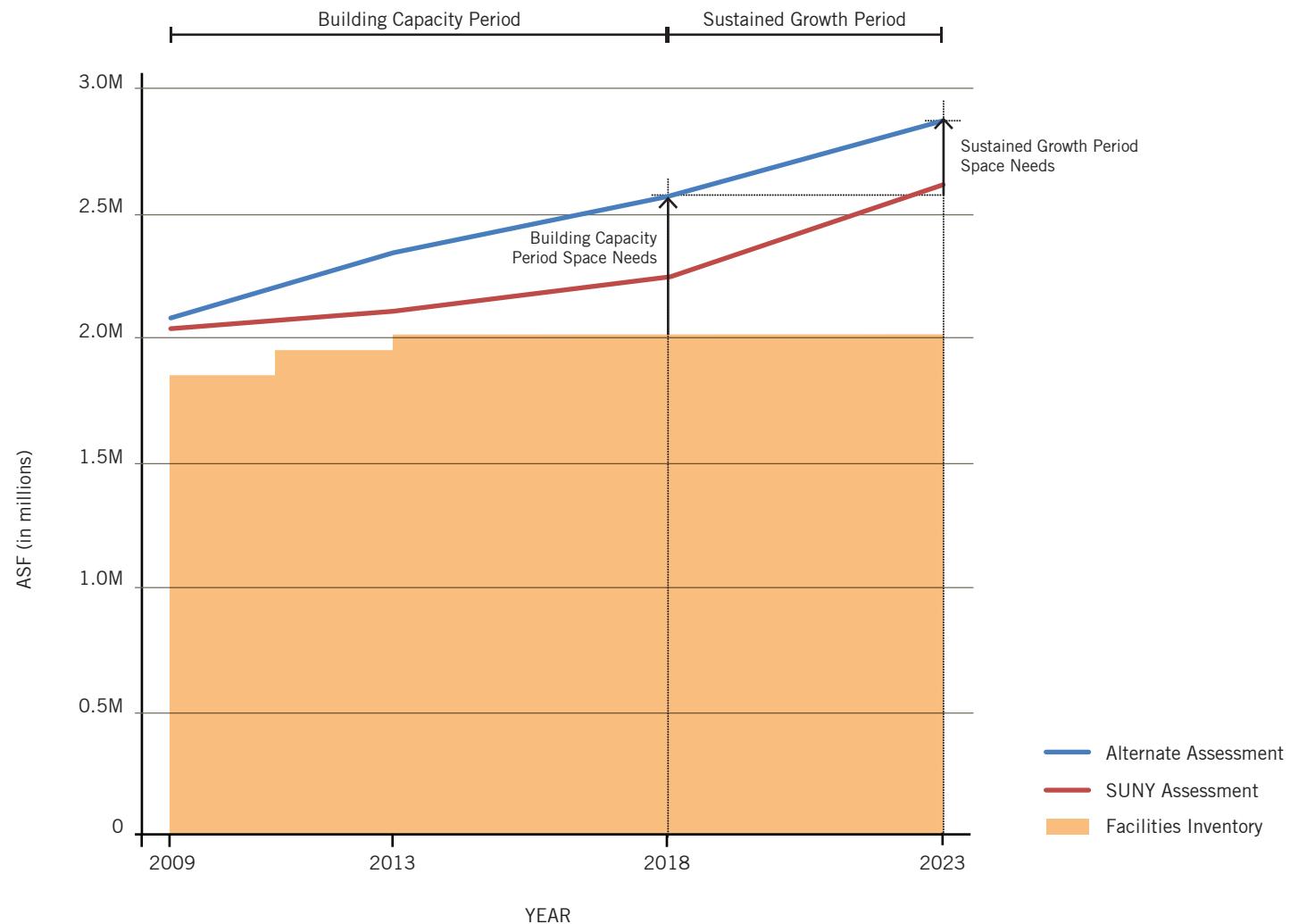


FIGURE 3.5.1A Summary of Inventory and Space Needs through 2023

3.5.2 CONSULTANT METHODOLOGY

SUNY ASSESSMENT OF OVERALL NEED

The SUNY assessment of overall need calculates space needs for Binghamton University based on the SUNY guideline methodology, outlined in section 3.2.1. This methodology uses a combination of space factors, FTE-based models, and equivalency factors. Space needs are reported in section 3.5.3 SUNY Assessment of Overall Need.

ALTERNATE ASSESSMENT OF OVERALL NEED

The alternate assessment of overall need calculates space needs for Binghamton University based on a modified set of parameters, addressing the shortcomings of the SUNY guidelines reported in section 3.2.2. This section presents consultant methodology in deriving the alternate assessment of overall need. Space needs are reported in section 3.5.4 Alternate Assessment of Overall Need.

The alternate assessment identifies and develops the University's space program around information from the following sources:

- + **Current and projected student and faculty FTEs.** In accordance with the future 2013-23 Capital Plans, the space analysis projects a need to 2023.
- + **Physical Space Inventory.** The Physical Space Inventory (PSI), as maintained by the University, shows total net square feet of building area, including all assignable space plus non-assignable circulation and mechanical space. The numbers generated from the inventory are grouped together by various categories including function and department, and are utilized in determining the amount of space required by a campus to support its mission and particular programs. It is important to note that throughout the FMP process, the University's inventory continues to undergo revisions and updating. The FMP reports two stages of Binghamton University's inventory: the 2009 reported by SUNY and an updated inventory that reflects new construction and major building modifications that are in the queue and will be online prior to the planning period.

+ **Utilization figures.** The assessment incorporates data sets derived from utilization analysis as outlined in section 3.3 of this report: Space Utilization. Utilization analysis contributes to recommendations for additional room units given WSCH allocation.

+ **SUNY space guidelines.** SUNY space guidelines provide a top-down allocation of space by institution level. However, the FMP consultant notes that applying top-down guidelines do not always accurately represent need and may be problematic depending on issues unique to particular campuses. Even with areas of inadequacy, the SUNY model does remain fairly accurate in identifying the total aggregate space requirements for Binghamton University. Refinements that disaggregate space totals into smaller elements are necessitated primarily to allow for planning subtleties in the Phase 4 and Phase 5 concept alternatives. The alternate assessment of need is provided for Binghamton University's FMP to report such refinements and adjustments to the University's total space need.

+ **Leadership Meetings and Interviews.** Development of the University's programmatic concepts began with a series of detailed discussions and group interviews conducted by the consultants. The consulting team met with several academic and nonacademic user groups, including the President, senior staff administrators, faculty chairs, support and auxiliary departments, and other representatives to solicit ideas and recommendations regarding current physical conditions and future programmatic goals. During the course of the interviews, a number of topics were presented to encourage the groups to uncover and discuss specific needs or intended changes in programs that could affect future space requirements. Among these topics were campus mission and image, student/faculty services and amenities, special programs, programmatic initiatives, building maintenance and upkeep, technology, library services, athletics and recreation, teaching environments and site and land use.

+ **Consideration of unique characteristics.** Unique characteristics also have an impact on the types of facilities that a University provides to its students. Binghamton University has a rich history in the liberal arts, coupled with programmatic excellence in engineering and professional programs. As a University Center in the SUNY system, it is poised as a leader in higher education

within the state of New York. Through extensive study of state and regional issues, as well as interview with a wide range of University constituents, characteristics unique to Binghamton University have been accounted for both quantitatively in the alternate assessment of need. Where such characteristics do not impact quantitative space projections, they have been considered in the FMP's qualitative assessment of need, outlined in section 3.5.7.

ACADEMIC SPACE

The alternate assessment approaches space needs for academic space, including general classrooms and computer labs and space for academic schools divisions, in a fundamentally different manner than the SUNY guidelines. In response to the shortcomings of the guidelines outlined in section 3.2.2 Shortcomings of the Guidelines, the alternate assessment provides a higher degree of specificity on the academic side for the most accurate portrayal of space needs and to facilitate a deeper level of analysis in the later-stages of project development.

General Classrooms and Computer Labs

This category includes credit-bearing teaching space in the form of (1) lecture halls, classrooms, seminar rooms, and classroom support; and (2) instructional computer labs.

Classrooms and Lecture Halls. Total classroom and lecture hall space need is principally based on evaluation of weekly student contact hours (WSCH). Total need is calculated using the following formula: Classroom Space Need = Total WSCH x Average Station Size / Station Usage Goal.

- + **Total WSCH.** The total WSCH is reported based on the Banner system at Binghamton University, using specifically identified PSI rooms. PSI rooms include those coded as classrooms (space type 1001) and lecture halls (space type 1100).
- + **Average Station Size.** SUNY assumes an average station size standard of 16 ASF per station. This figure reflects the provision of standard lecture hall-style instruction, which is only one component of contemporary pedagogy. The alternate assessment of need recommends that the University build an inventory of high-quality classroom facilities that reflects a diversity of pedagogical styles including lecture, small section discussion, project-based

learning, etc. To reflect this range of learning environments, the alternate assessment employs an average station size figure of 24 ASF per station.

- + Station Usage Goal. The alternate assessment employs the SUNY classroom station usage goal of 28.32 student contact hours per station per week.

As a result of the increase in average station size, the alternate assessment calls for more classroom and lecture hall space compared with the SUNY assessment.

Instructional Computer Labs. The methodology used to calculate instructional computer lab need is similar to that the classrooms space, using the formula of Lab Space Need = Total WSCH x Average Station Size / Station Usage Goal, with a variation in the factors.

- + The total WSCH is reported based on the Banner system at Binghamton University, using specifically identified PSI rooms.
- + Average Station Size. Station size requirements for instructional computer labs are larger than for general purpose classrooms. The alternate assessment provides 38 ASF per station for instructional computer labs.
- + Station Usage Goal. The alternate assessment utilizes the SUNY class lab station usage goal of 22.66 student contact hours per station per week.

Academic Schools and Divisions

The alternate assessment determines departmental space needs for academic schools and divisions based on program majors, departmental student FTEs, departmental WSCH, and instructional staffing models. This category includes space needs for (1) departmental spaces, (2) instructional laboratories, (3) research facilities, and (4) special use facilities.

- + Program Majors. The number of majors a department supports impacts facilities requirements for classroom, class lab, research, and departmental space. Majors are considered by academic status as undergraduate, graduate, or doctorate. Program major projections are derived from the University enrollment projections.
- + Departmental Student FTEs. Departmental student FTEs

serve as an indication of the daily workload of faculty members. The figure includes both FTEs from program majors as well as those from courses delivered to the general University population. Departmental FTEs inform the total departmental WSCHs. Student FTE projections are derived from the University enrollment projections.

- + Departmental WSCH. Departmental WSCH data is derived from the University's Fall 2009 course schedule, which represents peak load for the University. Like departmental student FTEs, figures includes both hours from program majors as well as those from courses delivered to the general University population. WSCHs are calculated using Binghamton University's methodology, which equates one credit-hour to 60 minutes.

WSCH are coded with a location, to indicate whether instruction occurs in a general classrooms or a class lab. Given the total WSCH associated with a particular space type, the space needs required for a department to deliver instruction may be determined.

Future departmental WSCHs are projected based on existing data coupled with the University's student FTE projections.

- + Instructional Staffing Models. The instructional staffing model outlines required full-time faculty, part-time faculty, adjunct faculty, teaching assistants and doctoral students, and supporting staff members required for a department to deliver instruction. Full-time faculty includes all full-time tenure-track, visiting faculty, and full-time lecturers. The instructional staffing model informs the quantity of departmental space and research space a department requires.

The alternate assessment assumes a metric of 70 percent of total required faculty FTEs to be provided as full-time. This metric is employed throughout the assessment, except in instances where a unique factor was provided by the University.

Projections for the academic schools and divisions consider four main categories of space:

Departmental Space. Departmental space includes all departmental offices for the chair, full-time faculty, part-time faculty, adjunct faculty, teaching assistants and doctoral students, and administrative support staff. The category also

includes supporting spaces such as workrooms, conference rooms, storage, and waiting rooms.

The alternate assessment utilizes a space factor of 180 ASF for departmental chairs offices and full-time faculty offices. This factor consists of a space standard of 120 ASF per office, plus an allowance of additional space for shared facilities. Space factors for part-time faculty, adjunct faculty, teaching assistants and doctoral students are tailored to each academic schools' unique application.

Each department is provided with a quantity and size of conference facilities to support their functions. For smaller departments, a single conference room to accommodate the entire faculty is provided. For larger departments, conference space is not provided to accommodate the entire department in a single room, rather multiple rooms are provided, with emphasis on supporting key committees and groups.

The alternate assessment envisions a model of space planning that provides identity for each department within the context of each building and the larger campus. Departments are conceived of as having a "front door" that is recognizable to the campus community, and including distributed student study and informal meeting space. Departmental facilities are sized to quantitatively account for such spaces.

Class Laboratory Space. Class lab space includes all instructional labs required for a given department to meet its curriculum delivery needs. Computer labs and support labs are included in this category.

Class lab quantity and section size are informed by WSCHs. In cases where the total WSCHs call for fractions of labs, the total quantity is rounded up.

Research Space. Research space includes all non-instructional facilities employed by faculty members and students to support research initiatives. Research space is derived as a factor of the participating faculty and/or graduate and undergraduate student population participating in research. The number of faculty participating in research is determined by referencing the distribution of faculty lines.

Special Use Space. Special use space includes all other unique spaces a department may require to meet its curriculum requirements that are not accounted for in the above categories.

SUPPORT SPACE

The alternate assessment's space calculations for support functions are more consistent with SUNY guidelines. As outlined in section 3.2.2 Shortcomings of the Guidelines, the alternate assessment identifies and corrects problematic areas in the guidelines for key categories.

This section outlines support space categories and their component departments, describes the SUNY guideline methodology for space needs calculation, and describes the alternate assessment methodology for space needs calculation, indicating if and how it diverges from the SUNY methodology.

Centers, Institutes, and Grant Funded Programs

Centers, institutes and grant funded programs include all facilities designated to such functions that are not designated as core research facilities within associated departments.

The SUNY guidelines account for centers, institutes, and grant funded programs within the organized activity and research categories. The original intent of these categories were to account for functions within an institution that have uses and identity independent of the academic departments and require facilities. The guidelines allocate space for these categories as an equivalent to existing space.

For the FMP analysis, the alternate assessment makes an adjustment to the original PSIs classification of research space. Binghamton University is unique within the SUNY University Centers in its reporting of research space. The inventory bifurcates each academic department to separate out research space into a series of organized research units. This has the effect of double counting some departmental space allocations based on a given quantity of faculty, graduate, and post-doctoral units. To more closely align analysis of existing space with space assessment projections, research space that is core to departmental operation is allocated to the individual departments.

The alternate assessment sizes space needs for centers, institutes, and grant funded programs based on the units remaining in the category following the above reallocation. The assessment allocates 3 ASF per FTE for the functions combined.

Academic Support

Academic support space consists of specialized functions that support student academics, but are not accounted for within departments or other support categories. For BU this includes the Writing Center and associated Writing Initiative program.

The academic support category is not discretely carried in the SUNY guidelines. The closest category is instructional resources, which includes both analog as well as technology-based initiatives that support academic functions.

The alternate assessment re-allocates a number of the functions in instructional resources to more closely represent the contemporary institution. Technological support, such as for distance learning, is accounted for in the information technology category. As a result, the academic space category is significantly reduced in its scope.

Space needs for academic support functions are sized based on the individual component departments, the Writing Center and Writing Initiative. The alternate assessment calls for an initial increase in space allowance to provide distinct identity for these programs better align facilities provision with the University's strategic goals, for an allocation of 0.25 ASF per FTE. Due to efficiencies gained with overall growth, academic support space needs do not increase linearly with FTE and the allocation reduces to 0.15 ASF per FTE through the planning period.

Information Technology

Information technology space consists of the University's Information Technology Services (ITS) department and its supporting functions as well as technological support functions for distance learning initiatives, such as EngiNet as a part of the Watson School of Engineering, and Educational Communications.

The SUNY guidelines account for information technology space in the data processing and instructional resources categories. Data processing includes core functions of computer services, such as those in BU's ITS department. The guidelines calculate space needs in both categories using a specified space allocation given the student population. BU's allowance for data processing is 35,700 ASF and for instructional resources is 29,002 ASF given its current population. These allowances increase to 49,080 ASF and 32,572 ASF respectively when

enrollment exceeds 20,001 FTEs.

The alternate assessment makes corrections in space allocation for data processing based on contemporary shifts and efficiencies gained in data processing equipment and operations, and complements data processing with instructional resource functions. To most accurately model needs, the assessment allocates 3.25 ASF per FTE in the near-term. Due to efficiencies gained with overall growth, space needs do not increase linearly with FTE and the allocation reduces to 2.5 ASF per FTE through the planning period.

Libraries

Library space includes collection space, seating space, and administrative offices and supporting facilities.

The SUNY guidelines determine space needs for libraries as a sum of three factors: a space per volume calculation, a seating space calculation of 5.32 ASF per student FTE, and an administrative calculation of $0.25 \times (\text{seating} + \text{volume space})$. The guidelines size a library based on the assumption of its serving as a repository for books, supported by a robust administrative staff.

The alternate assessment makes corrections in space allocation based on the contemporary role of the library as an intellectual hub for information access through a variety of means, rather than a repository for collections. The result is a net reduction in space needs driven by technological advances and resource limitations, as well as a fundamental shift in the distribution of space.

Athletics, Recreation, Health & Wellness Studies

Athletics, recreation, and health & wellness studies includes all spaces used by members of the campus community for athletic or physical activity functions, such as gymnasia, basketball courts, racquetball courts, indoor swimming pools, aerobic rooms, and supporting facilities. The category also includes indoor spectator seating for such facilities. The category does not include office space for health & wellness studies, which is an academic unit within Harpur College and is reported under Harpur non-divisional programs.

The SUNY guidelines calculate space needs for this category using a specified space allocation given student population. BU's allowance for the physical education category is 186,000

ASF given its current population. This allowance increases to 282,000 ASF when enrollment exceeds 20,001 FTEs.

For the FMP analysis, the alternate assessment reallocates 89,700 ASF of space from the student activities category to the athletics, recreation, HWS category. For details refer to section 3.4.1 Overview of Existing Space. This results in a total of 229,800 ASF in the category, exceeding the SUNY allowance of 186,000 ASF.

The alternate assessment calls for the total quantity of space for athletics, recreation, and HWS to remain constant at its current level until the University's population exceeds 20,001 FTEs. At that time, it calls for an increase to 282,000 ASF, per the SUNY guidelines.*

Assembly & Exhibition

Assembly and exhibition space includes formal assembly facilities such as theaters as well as exhibition facilities such as museums and galleries.

The SUNY guidelines calculate space needs for this category using a specified space allocation given student population. BU's allowance for assembly and exhibition is 61,450 ASF given its current population. This allowance increases to 84,120 ASF when enrollment exceeds 20,001 FTEs.

The alternate assessment employs the SUNY allocation indicated above.

Student Activity

Student activity space includes functions that support student and faculty life on campus, such as designated lounge space, game rooms, student organizations, food service offers, etc.

The SUNY guidelines calculate space needs for student activity space using a space factor of 10.5 ASF per FTE for University Centers. The alternate assessment employs the SUNY factor.

Child Care Center

Child care center space includes facilities designated to the University's worksite Campus Pre-School and Early Childhood Center.

The SUNY guidelines account for this space type with the student and faculty activities category. However, at the time

the guidelines were created, child care functions at institutions were provided at a much more modest level than today.

To account for such changes, the alternate assessment pulls out the child care center as a distinct space category. The assessment calls for an initial increase in space allowance to right-size the facility, for an allocation of 0.75 ASF per FTE. Due to efficiencies gained with overall growth, space needs do not increase linearly with FTE and the allocation reduces to 0.50 ASF per FTE through the planning period.

Student Services and Administration

Student services include those administrative functions that support student life on campus, such as admissions, financial aid, registrar, tutoring services and advising, as well as unique academic distinction programs.

Administration includes all administrative support services that facilitate the operations of a university, consisting primarily of offices, workstations, and office support areas such as conference rooms, work rooms, etc.

The SUNY guidelines account for student service and administration space within the general administration category. The guidelines allocate a total of 8 ASF per FTE for the composite of administrative units.

The assessment increases the space provision for student service and administrative units as the guidelines do not provide a robust enough space allocation to accommodate the full range of office and support functions that contemporary institutions require. As a result, the alternate assessment employs a modified composite figure of 10.5 ASF per FTE based on BU's current population. Due to efficiencies gained with overall growth, space needs do not increase linearly with FTE and the allocation returns to 8 ASF per FTE through the planning period.

In its reporting, the alternate assessment separates student services and administration to allow for closer accounting of space needs between the two functions.

Campus Services

Campus services space includes all "back of house" campus support spaces such as physical facilities operations (storage space, shops, and administrative space) and campus police

and safety functions.

The SUNY guidelines calculate space needs for campus services as 4 percent of the sum of other facilities categories (excluding campus services and building services).

The alternate assessment finds this allocation insufficient for contemporary institutions to support the full range of required buildings and grounds operation functions. A specific shortcoming is the provision of facilities for equipment and vehicle storage and maintenance, a particularly area of concern with electric and alternative fuel vehicles. As such, the alternate assessment employs a figure of 6 percent of the sum of other facilities categories.

Building Services

Building services space includes all local custodial and storage facilities located within buildings across campus.

The SUNY guidelines calculate space needs for building services as 3 percent of the sum of all other facilities categories (excluding building services). The alternate assessment employs the SUNY methodology.

*Due to unique programming at Binghamton University in the Division I Varsity Athletics, Campus Recreation, and Health & Wellness Studies, the qualitative assessment returned findings to indicate that the existing provision of space for this category is insufficient to support existing program. Refer to section 3.5.7 Qualitative Assessment for details. Concept alternatives and the final recommendation will consider both the space needs and qualitative assessments.

3.5.3 SUNY ASSESSMENT OF OVERALL NEED

The adjacent table represents the SUNY assessment of overall need for existing and future space needs at Binghamton University. The table is broken down into the relevant SUNY space categories on the instructional and support side. The columns represent the overall space need of the University at key points in the FMP planning period through 2023, including:

- + 2009 Existing. The University's existing inventory as reported in the Fall of 2009.
- + Updated Inventory. The University's inventory updated with projects in the queue through 2013.
- + 2009 Need. The calculated total quantity of space required to support the 2009 population of students, faculty and staff.
- + 2013 Need. The future space needs required to support the projected student, faculty and staff population in 2013.
- + 2018 Need. The future space needs required to support the projected student, faculty and staff population in 2018.
- + 2018 Deficit. The difference between 2013 Updated and 2018 Need.
- + 2023 Need. The future space needs required to support the projected student, faculty and staff population in 2023.
- + 2023 Deficit. The difference between 2013 Updated and 2023 Need.

The SUNY assessment of overall need indicates a near-term increase in the ASF per student FTE, followed by a decrease given full 2023 enrollment growth. This decrease occurs as a result of the type of student majors represented in the enrollment growth projections and efficiencies gained on the support space side.

Note: The difference between the 2009 Existing ASF of 1,821,397 and the total available ASF of 1,860,894 as indicated in section 3.3 Existing Conditions is the space tagged as inactive in the PSL. Inactive space is not allocated against a department in either space needs assessment.

TOTAL INSTITUTION	Building Capacity Period					Sustained Growth Period		
	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT	2023 PROJ	2023 DEFICIT
Instructional Space	562,592	595,087	665,004	681,586	716,040	-120,953	847,750	-252,663
Classrooms & Computer Labs	111,667	111,667	97,105	109,139	125,009	-13,342	148,544	-36,877
Instructional Dept Facilities	450,925	483,420	567,899	572,447	591,031	-107,611	699,206	-215,786
<i>Instructional ASF per FTE</i>	38	40	45	43	37		37	
Support Space	1,259,245	1,292,657	1,445,363	1,465,786	1,563,134	-270,477	1,798,530	-505,873
Organized Activity Units	70,691	70,691	70,691	70,691	70,691	0	70,691	0
Organized Research Units	189,087	216,975	216,975	216,975	216,975	0	216,975	0
Public Service Units	16,959	16,959	16,959	16,959	16,959	0	16,959	0
Assembly And Exhibition	15,983	15,983	61,450	61,450	61,450	-45,467	84,120	-68,137
Electronic Data Processing	22,801	21,997	35,700	35,700	35,700	-13,703	49,080	-27,083
Health & Physical Education	229,757	229,757	186,000	186,000	186,000	43,757	282,000	-52,243
Instructional Resources	14,750	14,750	29,002	29,002	29,002	-14,252	32,572	-17,822
Libraries	267,664	267,664	397,625	391,482	421,148	-153,484	433,440	-165,776
Student & Faculty Activities	123,765	123,515	154,613	168,294	201,737	-78,222	238,676	-115,161
Student Health Services	7,652	7,652	18,278	18,278	18,278	-10,626	16,278	-8,626
General Administration	146,373	148,103	117,800	128,224	153,704	-5,601	181,848	-33,745
M&O Central Services	84,930	85,651	78,804	80,186	85,107	544	98,816	-13,165
Building Services	68,833	72,960	61,467	62,545	66,384	6,576	77,076	-4,116
<i>Support ASF per FTE</i>	86	88	98	91	81		79	
TOTAL ASF	1,821,837	1,887,744	2,110,367	2,147,371	2,279,174	-391,430	2,646,280	-758,536
Student FTE	14,725	14,725	14,725	16,028	19,213		22,731	
<i>ASF per Student FTE</i>	124	128	143	134	119	-	116	-

FIGURE 3.5.3A SUNY Assessment of Overall Need, Total Institution

3.5.4 ALTERNATE ASSESSMENT OF OVERALL NEED

The adjacent table represents the alternate assessment of overall need for existing and future space needs at Binghamton University. The table is broken down into alternate assessment categories for instructional and support spaces. The columns represent the overall space need of the University at key points in the FMP planning period through 2023, similarly as with the SUNY assessment.

The alternate assessment of overall need indicates a near-term increase in the ASF per student FTE, followed by a decrease given full 2023 enrollment growth. Like the SUNY assessment, this decrease occurs as a result of the type of student majors represented in the enrollment growth projections and efficiencies gained on the support space side. However, the alternate assessment's ASF per student FTE figure does not decrease as significantly in the out-year.

Note: The difference between the 2009 Existing ASF of 1,862,390 and the total available ASF of 1,860,894 as indicated in section 3.3 Existing Conditions is the space tagged as inactive in the PSI. Inactive space is not allocated against a department in either space needs assessment.

TOTAL INSTITUTION	Building Capacity Period					Sustained Growth Period		
	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT	2023 PROJ	2023 DEFICIT
Academic Space	703,536	736,031	901,961	997,574	1,174,378	-438,347	1,312,088	-576,057
Classrooms & Computer Labs	124,041	124,041	152,537	165,419	197,054	-63,037	231,452	-107,411
Schools and Departments	579,495	611,990	749,424	832,155	977,324	-375,310	1,080,636	-468,646
Academic ASF per FTE	48	50	61	62	61		58	
Support Space	1,118,301	1,151,713	1,217,612	1,262,129	1,416,457	-264,744	1,575,020	-423,307
Grant Funded Programs	7,990	7,990	9,988	11,486	13,208	-5,218	15,190	-7,200
Centers & Institutes	25,813	53,701	34,574	39,308	50,152	3,549	56,413	-2,712
Academic Support	1,099	1,099	3,268	3,268	9,668	-8,569	9,668	-8,569
Information Technology	38,034	37,230	46,812	48,431	50,107	-12,877	51,841	-14,611
Library	301,559	301,559	282,603	289,103	344,396	-42,837	376,420	-74,861
Athletics, Recreation, HWS*	229,757	229,757	229,757	229,757	229,757	0	280,000	-50,243
Assembly & Exhibition	51,846	51,846	67,159	67,159	77,409	-25,563	77,409	-25,563
Student Activity	124,261	124,011	149,507	162,439	194,451	-70,440	229,870	-105,859
Child Care Center	8,605	8,605	10,856	10,856	10,856	-2,251	10,856	-2,251
Student Health Center	7,756	7,756	7,979	7,979	7,979	-223	7,979	-223
Student Services	42,743	43,193	54,306	56,064	61,483	-18,290	63,365	-20,172
Administrative Services	120,912	122,349	134,793	138,773	147,712	-25,363	152,017	-29,668
Campus Services	118,007	118,728	125,284	132,798	146,084	-27,356	162,236	-43,508
Building Services	39,334	44,231	61,068	65,050	73,537	-29,306	82,098	-37,867
Support ASF per FTE	76	78	83	79	74	-	69	-
TOTAL ASF	1,821,837	1,887,744	2,119,573	2,259,703	2,590,835	-703,091	2,887,108	-999,364
Student FTE	14,725	14,725	14,725	16,028	19,213	-	22,731	-
ASF per Student FTE	124	128	144	141	135		127	

FIGURE 3.5.4A Alternate Assessment of Need, Total Institution

*Due to unique programming at Binghamton University in the Division I Varsity Athletics, Campus Recreation, and Health & Wellness Studies, the qualitative assessment returned findings to indicate that the existing provision of space for this category is insufficient to support existing program. Refer to section 3.5.7 Qualitative Assessment for details. Concept alternatives and the final recommendation will consider both the space needs and qualitative assessments.

MAIN CAMPUS

The adjacent table represents the alternate assessment of overall need for Binghamton University's main campus in Vestal. The main campus includes both the area in and around the Brain, as well as the ITC Campus.

MAIN CAMPUS	Building Capacity Period					Sustained Growth Period		
	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT	2023 PROJ	2023 DEFICIT
Academic Space	684,357	717,009	884,896	977,096	1,103,993	-386,984	1,239,351	-522,342
Classrooms & Computer Labs	114,489	114,489	147,771	160,171	181,830	-67,341	215,173	-100,684
Schools and Departments	569,868	602,520	737,125	816,925	922,163	-319,643	1,024,178	-421,658
Academic ASF per FTE	48	51	62	63	62	-	58	-
Support Space	1,028,041	1,061,453	1,127,352	1,171,869	1,253,972	-110,416	1,412,535	-351,082
Grant Funded Programs	7,990	7,990	9,988	11,486	13,208	-5,218	15,190	-7,200
Centers & Institutes	22,799	50,687	31,560	36,294	41,738	8,949	47,999	2,688
Academic Support	1,099	1,099	3,268	3,268	3,268	-2,169	3,268	-2,169
Information Technology	37,479	36,675	46,257	47,876	49,552	-12,877	51,286	-14,611
Library	271,565	271,565	252,609	259,109	282,827	-11,262	314,851	-43,286
Athletics, Recreation, HWS	229,757	229,757	229,757	229,757	229,757	0	280,000	-50,243
Assembly & Exhibition	51,846	51,846	67,159	67,159	67,159	-15,313	67,159	-15,313
Student Activity	123,765	123,515	149,011	161,943	187,955	-64,440	223,374	-99,859
Child Care Center	8,605	8,605	10,856	10,856	10,856	-2,251	10,856	-2,251
Student Health Center	7,756	7,756	7,979	7,979	7,979	-223	7,979	-223
Student Services	38,650	39,100	50,213	51,971	53,790	-14,690	55,672	-16,572
Administrative Services	85,774	87,054	99,498	103,478	107,617	-20,563	111,922	-24,868
Campus Services	103,309	104,030	110,586	118,100	129,586	-25,556	145,738	-41,708
Building Services	37,647	41,774	58,611	62,593	68,680	-26,906	77,241	-35,467
Support ASF per FTE	72	75	79	76	70	-	66	-
TOTAL ASF	1,712,398	1,778,462	2,012,248	2,148,965	2,357,965	-579,503	2,651,886	-873,424
Student FTE	121	125	142	139	132	-	125	-
ASF per Student FTE	14,191.52	14,191.52	14,191.52	15,423.13	17,900.46	-	21,273.68	-

FIGURE 3.5.4B Alternate Assessment of Need, Main Campus, Student FTE determined for the main campus based on the location of student contact hours.

DOWNTOWN CAMPUS

The adjacent table represents the alternate assessment of overall need for Binghamton University's downtown campus in Binghamton at the University Downtown Center.

DOWNTOWN CAMPUS	Building Capacity Period					Sustained Growth Period		
	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT	2023 PROJ	2023 DEFICIT
Academic Space	19,179	19,179	17,065	20,478	24,327	-4,303	26,679	-7,657
Classrooms & Computer Labs	9,552	9,552	4,766	5,248	6,250	4,304	7,305	2,247
Schools and Departments	9,627	9,627	12,299	15,230	18,077	-8,607	19,374	-9,904
<i>Academic ASF per FTE</i>	32	32	32	34	33	-	30	-
Support Space	17,742	17,742	17,742	17,742	17,742	0	17,742	0
Grant Funded Programs	0	0	0	0	0	0	0	0
Centers & Institutes	0	0	0	0	0	0	0	0
Academic Support	0	0	0	0	0	0	0	0
Information Technology	555	555	555	555	555	0	555	0
Library	671	671	671	671	671	0	671	0
Athletics, Recreation, HWS	0	0	0	0	0	0	0	0
Assembly & Exhibition	0	0	0	0	0	0	0	0
Student Activity	496	496	496	496	496	0	496	0
Child Care Center	0	0	0	0	0	0	0	0
Student Health Center	0	0	0	0	0	0	0	0
Student Services	4,093	4,093	4,093	4,093	4,093	0	4,093	0
Administrative Services	10,325	10,325	10,325	10,325	10,325	0	10,325	0
Campus Services	162	162	162	162	162	0	162	0
Building Services	1,440	1,440	1,440	1,440	1,440	0	1,440	0
<i>Support ASF per FTE</i>	33	33	33	29	24		20	
TOTAL ASF	36,921	36,921	34,807	38,220	42,069	-4,303	44,421	-7,500
Student FTE	69	69	65	63	57		50	
<i>ASF per Student FTE</i>	533.57	533.57	533.57	604.67	742.34	-	887.61	-

FIGURE 3.5.4C Alternate Assessment of Need, Downtown Campus, Student FTE determined for the downtown campus based on the location of student contact hours.

OFF CAMPUS FACILITIES AND THE NEW SCHOOL OF LAW

The adjacent table represents the alternate assessment of overall need for off-campus facilities for Binghamton University as well as need to support the new School of Law.

The School of Law is a new academic program at BU that is projected to come on-line in 2015. The strategic approach toward facilities for the School of Law is to provide space in an existing or temporary facility for the initial years following program inception. The alternate assessment projections include a full listing of facilities requirements for a new School of Law Building, outlined to the right. This need is included in the Sustained Growth Period of space needs projections.

OFF CAMPUS FACILITIES	PROJECTED NEED
Academic Space	N/A
Classrooms & Computer Labs	N/A
Schools and Departments	N/A
<i>Academic ASF per FTE</i>	N/A
Support Space	60,853
Grant Funded Programs	0
Centers & Institutes	3,014
Academic Support	0
Information Technology	0
Library	29,323
Athletics, Recreation, HWS	0
Assembly & Exhibition	0
Student Activity	0
Child Care Center	0
Student Health Center	0
Student Services	0
Administrative Services	24,813
Campus Services	14,536
Building Services	832
<i>Support ASF per FTE</i>	N/A
TOTAL ASF	72,518
Student FTE	N/A
<i>ASF per Student FTE</i>	N/A

FIGURE 3.5.4D Alternate Assessment of Need, Off Campus, Based on student contact hours, no student FTEs are allocated to off campus facilities.

SCHOOL OF LAW	PROJECTED NEED
Academic Space	46,058
Classrooms & Computer Labs	8,974
Schools and Departments	37,084
<i>Academic ASF per FTE</i>	65
Support Space	73,425
Grant Funded Programs	0
Centers & Institutes	5,400
Law Clinic	6,400
Academic Support	1,200
Information Technology	0
Library	31,575
Athletics, Recreation, HWS	0
Assembly & Exhibition	10,250
Student Activity	6,000
Child Care Center	0
Student Health Center	0
Student Services	3,600
Administrative Services	4,800
Campus Services	1,800
Building Services	2,400
<i>Support ASF per FTE</i>	129
TOTAL ASF	119,483
Student FTE	570
<i>ASF per Student FTE</i>	194

FIGURE 3.5.4E Alternate Assessment of Need, New School of Law, Student FTE determined for the School of Law based on the location of student contact hours.

3.5.5 BUILDING CAPACITY PERIOD DETAIL

Due to the magnitude of enrollment growth and associated space needs, it is important for the FMP to prioritize overall need to ensure that the correct type of facilities are provided early in the plan. To aid in prioritization, space needs are separated into two planning horizons: a near-term Building Capacity Period, followed by a long-term Sustained Growth Period.

The Building Capacity Period address space needs associated with growth through 2018. The period achieves the two-fold purpose of redressing existing facilities capacity and condition issues while also aligning the overall facilities provision with the University's revised academic and strategic mission.

The following section presents the space needs associated with the Building Capacity Period according to the format:

- + Main Campus, Academic Space
 - + General Classrooms and Computer Labs
 - + Harpur College: Fine Arts Division
 - + Harpur College: Humanities Division
 - + Harpur College: Science & Mathematics Division
 - + Harpur College: Social Science Division
 - + Harpur College: Non-Divisional Programs
 - + Watson School of Engineering
 - + Professional Programs
- + Main Campus, Support Space
- + Downtown Campus

SCHOOL OR DIVISION	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Classrooms and Computer Labs	124,041	124,041	152,537	165,419	197,054	-63,037
Harpur College: Fine Arts Division	95,742	95,742	106,893	119,682	128,783	-33,041
Harpur College: Humanities Division	28,193	28,193	47,510	50,846	57,361	-29,168
Harpur College: Science & Mathematics Division	255,802	271,728	282,634	311,526	361,520	-89,792
Harpur College: Social Sciences Division	56,442	60,776	92,134	99,894	106,633	-45,857
Harpur College: Interdisciplinary Programs	2,307	2,307	2,524	2,524	2,765	-458
Harpur College: Non-Majors Programs	4,915	4,915	6,176	6,446	6,662	-1,747
Watson School of Engineering	94,877	107,112	142,295	161,674	187,316	-80,204
School of Education	6,144	6,144	11,210	12,356	14,438	-8,294
School of Management	15,720	15,720	24,139	26,340	28,897	-13,177
School of Nursing	9,883	9,883	21,610	25,637	27,788	-17,905
TOTAL	694,066	726,561	889,662	982,344	1,156,301	-462,235

FIGURE 3.5.5A Summary of Academic Space Needs for the Main Campus

MAIN CAMPUS, ACADEMIC SPACE

CLASSROOMS AND COMPUTER LABS

GENERAL CLASSROOMS

The alternate assessment's projections for general classroom space are rooted in the fundamental goal of improving the overall quality of the classroom inventory at Binghamton University.

The FMP employs the metric of ASF per station as a quantitative measure of classroom quality. The chart below summarizes ASF per station values across different room types for legacy classrooms and desired contemporary classrooms.

Legacy classroom facilities are largely comprised of large-section lecture halls and tablet armchair rooms. These spaces were constructed in a pedagogical environment that emphasized the delivery of instruction. They functioned in the range of 14 to 18 ASF per station.

Learning environments for higher education have changed dramatically over the past decade to reflect evolving educational pedagogy and technological advances. Education has shifted from an instruction-based paradigm to a learning-based paradigm, moving students to the center. Successful contemporary classroom environments seek to create a strong learning-centric environment that facilitates the success of each individual student. A contemporary classroom inventory consists of a broader-range of spaces, including greater emphasis on rooms with flexible tables and chairs, seminar discussion rooms, and project-based learning rooms. These spaces function in the range of 18 to 28 ASF per station.

Binghamton University's existing inventory of classrooms averages 15 ASF per station, well below the range desired for contemporary learning environments. Space projections for general classroom space indicate a net increase in facilities during the building capacity period that is driven by two factors: an increase in the quantity of rooms and stations presents in the inventory; and an increase in the allotted ASF per station for quality improvement.

Technology-Rich Classrooms. Where classrooms and lecture halls were once a primary location for knowledge transfer at a University, today's students are able to access knowledge from nearly anywhere due to the advent of technology and the internet. When brought into the classroom, technology allows for greater customization and personalization of the learning

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Classrooms	104,734	104,734	137,771	150,171	171,830	-67,096
Computer Labs	9,755	9,755	10,000	10,000	10,000	-245
TOTAL	114,489	114,489	147,771	160,171	181,830	-67,341

FIGURE 3.5.5B Classroom and Computer Lab Space Needs for the Main Campus

experience to meet each student's unique needs, enabling students and faculty to access a wider range of knowledge sources, and receive immediate feedback and support. Technologies that contribute to classroom environments may include laptop-ready configurations, internet access, network access for collaboration, or distance learning tools.

Group-Based Learning. New findings about how learning occurs reinforce the changes introduced by technologies. Studies indicate a strong value in active, hands-on, participatory learning versus a more passive traditional lecture style. Students that engage multiple media, such as combining digital research with interactive group work, are found to have better rates of information retention. Classrooms designed to allow for group configurations and project learning capture the benefits of these methodologies.

COMPUTER LABS

Instructional computer lab need is determined in a similar manner as classroom need, based on WSCH assigned to the room typology. Computer lab need is determined on a department by department basis, and summed across the whole campus to determine a total need for shared lab facilities. This category does not include specialized computer labs that are associated with particular academic departments.

The University's future computer lab need given enrollment growth is in line with the quantity of existing space.

ROOM TYPE	LEGACY ASF/STATION	DESIRED ASF/STATION
Lecture Hall	14-16	18-21
Tablet Armchair	16-18	18-21
Tables and Chairs	N/A	21-24
Seminar Rooms	N/A	25
Project-Based Learning	N/A	28

FIGURE 3.5.5C Classroom Quality Metric, ASF per Station

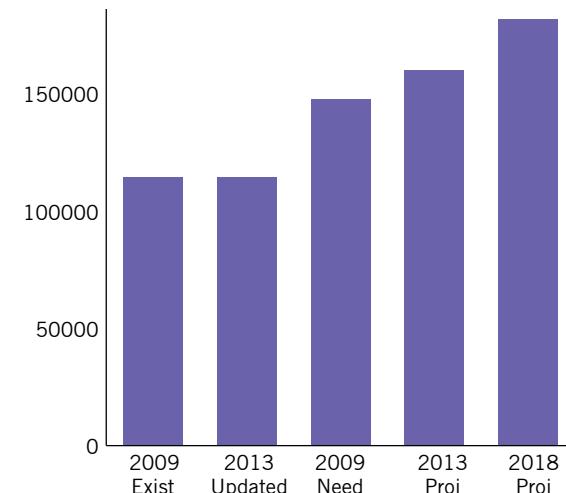


FIGURE 3.5.5D Total ASF Need for General Classrooms and Computer Labs

HARPUR COLLEGE: FINE ARTS DIVISION

ART HISTORY

Projections for the Art History department indicate a net increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty lines,
- + An increase in research space to provide facilities for a greater number of graduate students participating in research,
- + A decrease in the facilities allotted to the department's slide library by the end of the period, consistent with the transition of University toward digitization and remote and consolidated storage of collections.

ART STUDIO

Projections for the Art Studio department indicate a net increase in facilities during the building capacity period.

- + A modest increase in departmental space for additional faculty lines,
- + An increase in class laboratory space for additional studios (design, drawing, microcomputer lab, and painting) and provision of a new central output and equipment dispensing space,
- + Provision of new studios for undergraduate BFA student use.

CINEMA

Projections for the Cinema department indicate a net increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty lines,
- + An net increase in class laboratory space, comprised of a transition toward and increase in digital media facilities from analog facilities and provision of a new central output and equipment dispensing space.

MUSIC

Projections for the Music department indicate a net increase in facilities during the building capacity period.

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Art History	6,450	6,450	7,837	7,897	8,036	-1,586
Art Studio	21,992	21,992	26,116	28,293	31,758	-9,766
Cinema	9,335	9,335	13,630	17,092	19,234	-9,899
Music	23,537	23,537	26,240	30,660	32,731	-9,194
Theater	34,428	34,428	33,070	35,740	37,024	-2,596
TOTAL	95,742	95,742	106,893	119,682	128,783	-33,041

FIGURE 3.5.5E Harpur Fine Arts Departmental Space Needs

- + An increase in departmental space for right-sizing of existing facilities, a increase of one faculty line, and an increase in teaching assistants,
- + A net increase in class laboratory space, comprised of an initial retrenchment followed by the provision of additional studios (small rehearsal room and organ room, large and small) and a central output and equipment dispensing space,
- + An increase in research space to provide facilities for a greater number of undergraduate student practice rooms.

THEATER

Projections for the Theater department indicate a modest net increase in space facilities during the building capacity period, comprised of an initial retrenchment, followed by expansion.

- + An increase in departmental space for an increase in faculty lines and provision of a conference room,
- + A net decrease in facilities allotted to class laboratory space for right-sizing of facilities, however including the provision of an additional rehearsal studio at the end of the period,
- + Provision of new undergraduate rehearsal rooms for Theater student use.

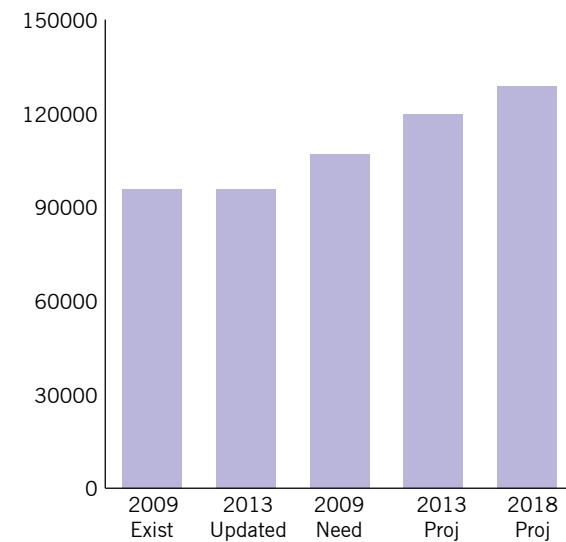


FIGURE 3.5.5F Total ASF Need for Harpur College of Arts and Sciences, Fine Arts Division

MAIN CAMPUS, ACADEMIC SPACE

HARPUR COLLEGE: HUMANITIES DIVISION

AFRICANA STUDIES

Projections for the Africana Studies department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of facilities and an increase in faculty and teaching assistants.

ASIAN & ASIAN-AMERICAN STUDIES

Projections for Asian & Asian-American Studies indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty lines, as well as the addition of doctoral student lines in 2018.

CLASSICAL & NEAR EASTERN STUDIES

Projections for Classical & Near Eastern Studies indicate an increase in facilities during the building capacity period.

- + A near-term increase in departmental space for right-sizing of existing facilities, an increase in faculty lines, and the addition of a designated conference room.

COMPARATIVE LITERATURE

Projections for the Comparative Literature department indicate an increase in facilities during the building capacity period.

- + A significant increase in departmental space for right-sizing of existing facilities and an increase in faculty lines, doctoral student lines, and teaching assistants,
- + The provision of new facilities for graduate students participating in research functions.

ENGLISH, GENERAL LITERATURE & RHETORIC

Projections for the English, General Literature & Rhetoric department indicate an increase in facilities during the building capacity period.

- + A significant increase in departmental space for right-sizing of existing facilities, an increase in faculty lines, and provision of additional conference and secretary facilities,
- + An increase in class laboratory space for right-sizing of the existing journalism lab and provision of an additional lab and an increase in faculty research space.

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Africana Studies	1,062	1,062	1,890	1,944	1,944	-882
Asian & Asian-American Studies	2,910	2,910	3,767	4,037	5,373	-2,463
Classical & Near Eastern Studies	1,094	1,094	2,295	2,295	2,295	-1,201
Comparative Literature	2,254	2,254	6,440	7,067	7,958	-5,704
English, General Literature, Rhetoric	10,999	10,999	16,627	18,065	21,012	-10,013
German and Russian Studies	1,828	1,828	2,329	2,329	2,329	-501
Judaic Studies	1,093	1,093	2,005	2,005	2,005	-912
Philosophy	3,346	3,346	7,378	8,325	9,612	-6,266
Romance Languages & Literature	2,777	2,777	3,949	3,949	4,003	-1,226
Chair	830	830	830	830	830	0
TOTAL	28,193	28,193	47,510	50,846	57,361	-29,168

FIGURE 3.5.5G Harpur Humanities Departmental Space Needs

GERMAN AND RUSSIAN STUDIES

Projections for German and Russian Studies indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of facilities given existing lines.

JUDAIC STUDIES

Projections for the Judaic Studies department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of facilities given existing lines.

PHILOSOPHY

Projections for the Philosophy department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities, an increase in faculty, doctoral student and teaching assistant lines, and a conference room.

ROMANCE LANGUAGES & LITERATURE

Projections for Romance Languages & Literature indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of facilities given existing lines.

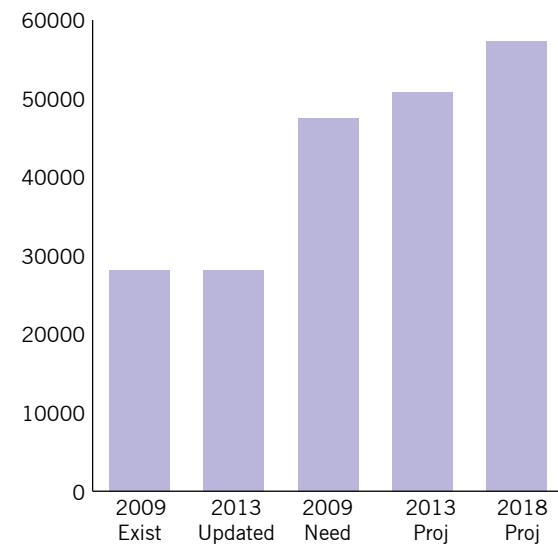


FIGURE 3.5.5H Total ASF Need for Harpur College of Arts and Sciences, Humanities Division

HARPUR COLLEGE: SCIENCE & MATHEMATICS DIVISION

BIOLOGY

Projections for the Biology department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for an increase in faculty, graduate student, and teaching assistant lines as well as the provision of an additional conference facility,
- + A modest increase in class laboratory space for provision of an additional anatomy & physiology lab and microbiology lab,
- + An increase in research space for the provision of facilities for a greater number of faculty members, graduate students, and undergraduate students, and supporting staff,
- + Provision of a new designated departmental tutoring center.

CHEMISTRY

Projections for the Chemistry department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for an increase in faculty and graduate student lines as well as the provision of an additional conference facility in the out-year,
- + An increase in class laboratory space for provision of an additional general chemistry lab, organic chemistry lab, and physical chemistry lab,
- + An increase in research space for the provision of facilities for a greater number of faculty members, graduate students, and undergraduate students, and supporting staff,
- + Provision of a new designated storage facility for the department.

GEOLOGICAL SCIENCES & ENVIRONMENTAL STUDIES

Projections for the Geological Sciences & Environmental Studies department indicate an initial decrease in the near-term followed by a net increase in facilities during the building capacity period.

- + A reduction in departmental office space for right-sizing of facilities,
- + An increase in class laboratory space for the right-sizing

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Biology	73,047	73,197	72,425	81,290	92,574	-19,377
Chemistry	57,184	57,184	67,395	74,972	86,568	-29,384
Geological Sciences & Environmental Studies	27,749	27,749	27,704	28,937	34,734	-6,985
Mathematical Sciences	8,487	8,487	13,557	14,124	16,035	-7,548
Physics, Applied Physics & Astronomy	28,439	28,439	26,564	30,718	37,242	-8,803
Psychology	46,698	55,298	51,189	54,885	64,967	-9,669
Animal Care	14,198	21,374	23,800	26,600	29,400	-8,026
TOTAL	255,802	271,728	282,634	311,526	361,520	-89,792

FIGURE 3.5.5I Harpur Sciences Departmental Space Needs

- of existing laboratories and the provision of an additional geology lab in the out-year,
- + A net reduction in research space for right-sizing and re-allocating facilities to support a greater number of graduate and undergraduate students participating in research.

MATHEMATICAL SCIENCES

Projections for the Mathematical Sciences department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for an increase in faculty lines and provision of an additional conference room,
- + A modest increase in class laboratory space to provide facilities to support a greater number of faculty and graduate students,
- + The provision of a new Math Center to support new pedagogical curriculum development shifts.

PHYSICS, APPLIED PHYSICS & ASTRONOMY

Projections for the Physics, Applied Physics & Astronomy Studies department indicate an initial decrease in the near-term followed by a net increase in facilities during the building capacity period.

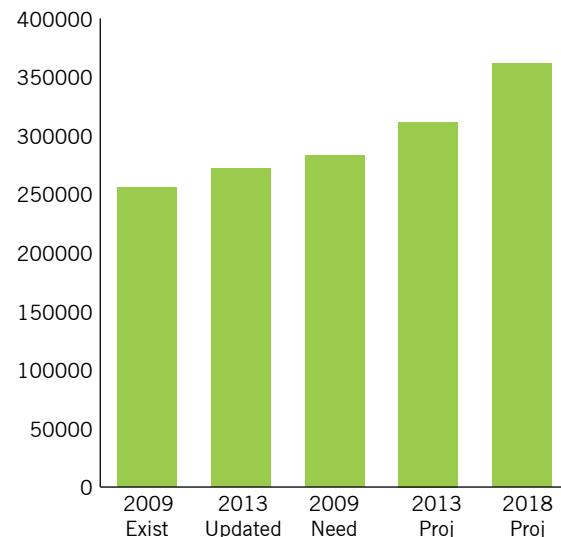


FIGURE 3.5.5J Total ASF Need for Harpur College of Arts and Sciences, Sciences & Mathematics Division

MAIN CAMPUS, ACADEMIC SPACE

- + An increase in departmental space for right-sizing of existing facilities, provision of additional storage and conference space, and provision of facilities for doctoral students in the out-year,
- + A modest net increase in class laboratory space consisting of an initial decrease for reduction of sophomore and junior project labs, and the provision of an additional general physics lab in the out-year,
- + A net increase in research space consisting of an initial decrease for right-sizing of facilities and re-allocating of facilities to support a greater number of undergraduate and graduate students participating in research.

PSYCHOLOGY

Projections for the Psychology department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for an increase in faculty and doctoral student lines and the provision of additional storage and conference facilities,
- + An increase in class laboratory space for right-sizing of facilities and the provision of an additional learning motivation lab,
- + A net increase in research space, consisting of an initial decrease for right-sizing of facilities, followed by an increase in facilities provided for undergraduate students and research staff and the addition of forth research focus area.



HARPUR COLLEGE: SOCIAL SCIENCE DIVISION

ANTHROPOLOGY

Projections for the Anthropology department indicate an increase in facilities during the building capacity period.

- + A modest increase in departmental space for right-sizing of existing facilities and an increase in faculty, doctoral student, and teaching assistant lines,
- + An increase in class laboratory space for right-sizing of existing lab facilities,
- + An increase in research space for the provision of facilities for a greater number of faculty and graduate students.

ECONOMICS

Projections for the Economics department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty, doctoral student, and teaching assistant lines,
- + Provision of a designated computer lab space,
- + Provision of research space for graduate students in the out-year.

GEOGRAPHY

Projections for the Geography department indicate a modest increase in facilities during the building capacity period.

- + A modest net increase in departmental space, consisting of a near-term decrease in the context of expanded faculty lines and provision of a designated conference facility for right-sizing, followed by an increase for faculty and teaching assistant line expansion,
- + An increase in class laboratory space for right-sizing of existing lab facilities,
- + An increase in research facilities for right-sizing of facilities.

HISTORY

Projections for the History department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Anthropology	25,929	25,929	44,105	48,349	50,414	-24,485
Economics	5,464	5,464	10,105	11,258	12,423	-6,959
Geography	6,827	11,318	9,628	9,736	10,168	1,150
History	6,950	6,950	13,372	13,693	14,823	-7,873
Political Science	7,397	7,397	6,975	7,891	8,831	-1,434
Sociology	3,718	3,718	7,949	8,967	9,974	-6,256
TOTAL	56,285	60,776	92,134	99,894	106,633	-45,857

FIGURE 3.5.5K Harpur Social Sciences Departmental Space Needs

- existing facilities an increase doctoral student and teaching assistant lines and provision of a new conference room, and an out-year increase in faculty lines,
- + An increase in research facilities for right-sizing of existing facilities and provision of space for additional faculty members.

POLITICAL SCIENCE

Projections for the Political Science department indicate a net increase in facilities during the building capacity period, consisting of a near-term reduction followed by expansion.

- + An increase in departmental space for right-sizing of existing facilities an increase doctoral student and teaching assistant lines and provision of a new conference room, and an out-year increase in faculty lines,
- + A decrease and right-sizing of research facilities to meet needs of graduate student research.

SOCIOLOGY

Projections for the Sociology department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty, doctoral student, and teaching assistant lines,
- + Provision of facilities for graduate student research.

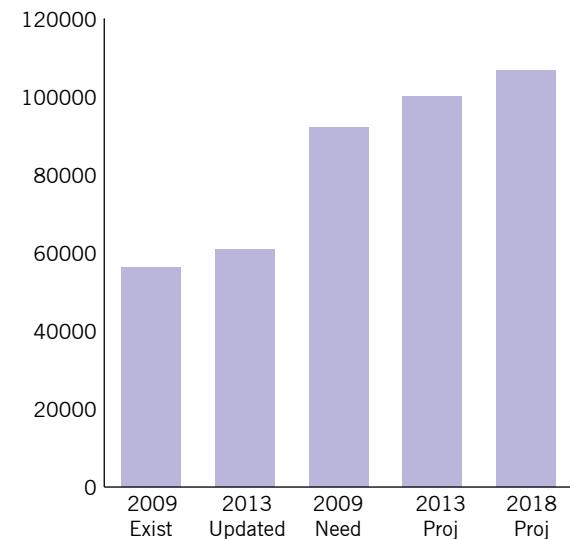


FIGURE 3.5.5L Total ASF Need for Harpur College of Arts and Sciences, Social Sciences Division

MAIN CAMPUS, ACADEMIC SPACE

WATSON SCHOOL OF ENGINEERING

BIOENGINEERING

Projections for the Bioengineering department indicate an increase in facilities during the building capacity period.

- + A decrease in departmental space for right-sizing of existing facilities, in the context of the provision of an additional storage facility and an increase in teaching assistant lines,
- + An increase in class laboratory space for right-sizing of existing facilities,
- + An increase in research facilities for right-sizing existing spaces and provision of facilities for a greater number of graduate and undergraduate students.

COMPUTER SCIENCE

Projections for the Computer Science department indicate an increase in facilities during the building capacity period.

- + A modest increase in departmental space for an increase in faculty lines and the provision of an additional storage facility,
- + A modest increase in class laboratory facilities for right-sizing of existing spaces,
- + A net increase in research space, consisting of an initial decrease for right-sizing followed by expansion to support an increased number of faculty, graduate students, and undergraduate students.

ELECTRICAL AND COMPUTER ENGINEERING

Projections for the Electrical and Computer Engineering department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities, an increase in faculty, doctoral student, and teaching assistant lines, and provision of an additional storage facility,
- + A modest increase in class laboratory facilities for right-sizing of existing spaces,
- + An increase in research space for the provision of facilities for a greater number of faculty, graduate students, and undergraduate students.

ENGINEERING DESIGN

Projections for the Engineering Design department indicate an increase in facilities during the building capacity period.

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Bioengineering	12,417	12,417	17,722	19,948	22,794	-10,377
Computer Science	22,456	22,456	27,232	30,284	35,230	-12,774
Electrical Engineering	20,042	28,157	31,477	37,482	44,507	-16,350
Engineering Design	4,275	4,275	9,916	10,461	10,758	-6,483
Mechanical Engineering	22,353	26,473	36,025	40,761	48,637	-22,164
Systems & Industrial Engineering	13,334	13,334	19,923	22,738	25,390	-12,056
TOTAL	94,877	107,112	142,295	161,674	187,316	-80,204

FIGURE 3.5.5M Watson School of Engineering Departmental Space Needs

- + A modest increase in departmental space in the out-years for an increase in faculty and teaching assistant lines,
- + An increase in class laboratory space for right-sizing of the freshman project lab and provision of an additional lab.

MECHANICAL ENGINEERING

Projections for the Mechanical Engineering department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty, doctoral student, and teaching assistant lines,
- + Equivalency of existing class laboratory space,
- + An increase in research space for the provision of facilities for a greater number of faculty, graduate students, and undergraduate students.

SYSTEMS SCIENCE & INDUSTRIAL ENGINEERING

Projections for the Systems Science & Industrial Engineering department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty, doctoral student, and teaching assistant lines,
- + A increase in class laboratory space for right-sizing of facilities,
- + A net increase in research facilities in the out-year, consisting of a decrease in the near-term for right-sizing while increasing facilities allowance for graduate students.

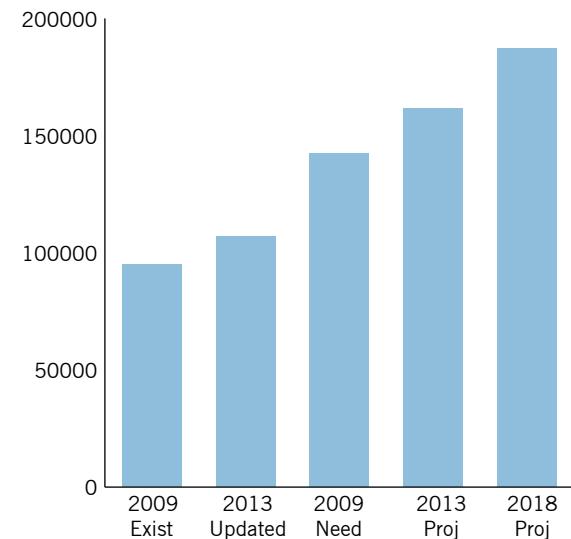


FIGURE 3.5.5N Total ASF Need for Watson School of Engineering

PROFESSIONAL PROGRAMS

SCHOOL OF EDUCATION

Projections for the School of Education indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty, doctoral student, and teaching assistant lines,
- + An increase in class laboratory space for right-sizing of the existing computer lab,
- + A modest increase in facilities provision for the lyceum.

SCHOOL OF MANAGEMENT

Projections for the School of Management indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and an increase in faculty, doctoral student, and teaching assistant lines,
- + An increase in class laboratory space for right-sizing of existing labs, the provision of an additional decision lab, and the provision of additional team rooms,
- + An increase in research facilities to support a greater number of faculty and graduate students.

DECKER SCHOOL OF NURSING

Projections for the School of Nursing indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for the provision of office facilities for all full-time faculty, whether on the tenure track or clinical track and provision of facilities for an increase in faculty, doctoral student, and teaching assistant lines,
- + A net increase in class laboratory space, consisting of an initial decrease for right-sizing followed by an increase for the provision of an additional simulation lab and skills lab,
- + An increase in research space to support a greater number of faculty and graduate students.

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
School of Education	6,144	6,144	11,210	12,356	14,438	-8,294
School of Management	15,720	15,720	24,139	26,340	28,897	-13,177
School of Nursing	9,883	9,883	21,610	25,637	27,788	-17,905
TOTAL	31,747	31,747	56,959	64,333	71,123	-39,376

FIGURE 3.5.50 Professional Program Departmental Space Needs

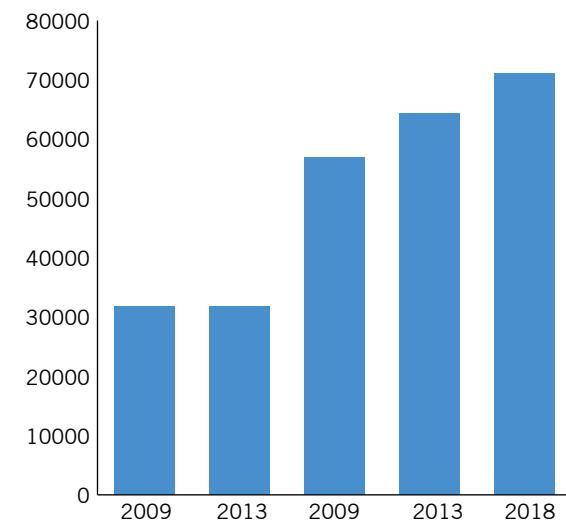


FIGURE 3.5.5P Total ASF Need for Professional Programs

MAIN CAMPUS, SUPPORT SPACE

GRANT FUNDED PROGRAMS

Projections indicate an increase in facilities for Grant Funded Programs during the building capacity period. The increase consists of a combination of expansion of existing programs as well as the addition of new programs with the University's future emphasis on innovation and discovery.

CENTERS & INSTITUTES

Projections indicate an increase in facilities for Centers & Institutes during the building capacity period. Like Grant Funded Programs, the increase consists of a combination of expansion of existing programs as well as the addition of new programs with the University's future emphasis on innovation and discovery. Within the next increase also exists a reallocation of space to right-size certain existing programs.

ACADEMIC SUPPORT

Projections indicate an increase in facilities for Academic Support during the building capacity period. This category includes the University's Writing Center and Writing Initiative. The projections provide designated facilities for each program, emphasizing the University's rich history in the liberal arts.

INFORMATION TECHNOLOGY

Projections indicate an increase in facilities for Information Technology during the building capacity period. The increase occurs due to expansion of the University's technology support programs, particularly those supporting technology-enhanced teaching and learning. The projections account for efficiencies gained in data processing equipment and operations.

LIBRARIES

Projections indicate a net increase in facilities for Libraries during the building capacity period, consisting of an initial decrease driven by right-sizing of collections space, followed by an increase. The projections allocate library space based on the contemporary role of the library as an intellectual hub for information access through a variety of means, rather than a repository for collections. Space needs for Libraries consist of a decrease in the amount of facilities for collections, assuming use of a consolidated storage mechanism to accommodate partial collections; an increase reader-centric functions such

as seating, information commons, librarian access points, and individual and group study rooms; and a relative equivalent provision of space for administrative functions.

ATHLETICS, RECREATION, HEALTH & WELLNESS STUDIES

Projections indicate no additional facilities requirements for Athletics, Recreation, and the support side of Health and Wellness Studies during the building capacity period. The assessment finds this category of space to be sufficient compared with the University's peers, and over-built compared with system standards.

ASSEMBLY & EXHIBITION

Projections indicate a modest increase in facilities for Assembly & Exhibition during the building capacity period. The increase accounts for the right-sizing of support functions to complement the University's existing assembly and exhibition spaces.

STUDENT ACTIVITY

Projections indicate an increase in facilities for Student Activity during the building capacity period. The increase provides informal student gathering, lounge, and study space distributed throughout all campus buildings to support existing centralized facilities. This model reflects student learning styles and contemporary practices within higher education.

CHILD CARE CENTER

Projections indicate a modest increase in facilities for the Child Care Center during the building capacity period. The increase occurs due to right-sizing of existing functions and a modest increase in capacity.

STUDENT HEALTH CENTER

Projections indicate an increase in facilities for the Student Health Center during the building capacity period. The increase occurs due to right-sizing of existing functions.

STUDENT SERVICES

Projections indicate an increase in facilities for Student Services during the building capacity period. The increase provides

expanded capacity for student financial and registration services such as financial aid, registrar, and student accounts; expanded capacity for the academic advising office for Harpur College; new designated facilities for the Binghamton Scholars and Bridges to Baccalaureate programs; expanded capacity for the Student Counseling center; and expanded capacity to support a general growing student population for other services such as the Career Development Center, Disable Student Services, the Discovery program, and the Dean of Students and affiliated functions.

ADMINISTRATIVE SERVICES

Projections indicate an increase in facilities for Administrative Services during the building capacity period. Need is associated with right-sizing of existing administrative functions to provide a more robust space allocation to accommodate the full range of office and support facilities that contemporary institutions require, as identified in Student Services and Administration in section 3.5.2 Consultant Methodology.

CAMPUS SERVICES

Projections indicate an increase in facilities for Campus Services during the building capacity period. The increase accounts for the full array of services provided by campus services at the contemporary institution. A specific area addressed is the provision of facilities for equipment and vehicle storage and maintenance, a particularly area of concern with electric and alternative fuel vehicles.

BUILDING SERVICES

Projections indicate an increase in facilities for Building Services during the building capacity period. The increase assumes continued distribution of building services spaces throughout facilities, and reflects the University's overall increase in facilities provision.

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Grant Funded Programs	7,990	7,990	9,988	11,486	13,208	-5,218
Centers & Institutes	25,813	53,701	34,574	39,308	50,152	3,549
Academic Support	1,099	1,099	3,268	3,268	9,668	-8,569
Information Technology	38,034	37,230	46,812	48,431	50,107	-12,877
Libraries	301,559	301,559	282,603	289,103	344,396	-42,837
Athletics, Recreation, HWS*	229,757	229,757	229,757	229,757	229,757	0
Assembly & Exhibition	51,846	51,846	67,159	67,159	77,409	-25,563
Student Activity	124,261	124,011	149,507	162,439	194,451	-70,440
Child Care Center	8,605	8,605	10,856	10,856	10,856	-2,251
Student Health Center	7,756	7,756	7,979	7,979	7,979	-223
Student Services	42,743	43,193	54,306	56,064	61,483	-18,290
Administrative Services	120,912	122,192	134,636	138,616	147,555	-25,363
Campus Services	118,007	118,728	125,284	132,798	146,084	-27,356
Building Services	39,919	44,046	60,883	64,865	73,352	-29,306
TOTAL	1,118,301	1,151,713	1,217,612	1,262,129	1,416,457	-264,744

FIGURE 3.5.5Q Support Space Needs

*Due to unique programming at Binghamton University in the Division I Varsity Athletics, Campus Recreation, and Health & Wellness Studies, the qualitative assessment returned findings to indicate that the existing provision of space for this category is insufficient to support existing program. Refer to section 3.5.7 Qualitative Assessment for details. Concept alternatives and the final recommendation will consider both the space needs and qualitative assessments.

DOWNTOWN CAMPUS

COLLEGE OF COMMUNITY AND PUBLIC AFFAIRS

CLASSROOMS & COMPUTER LABS

Projections for the Classrooms & Computer Labs at the downtown campus indicate a decrease in facilities during the building capacity period. This presents an opportunity to right-size facilities for improved utilization, and re-allocate space to meet other needs.

HUMAN DEVELOPMENT

Projections for the Human Development department indicate an increase in facilities during the building capacity period.

- + An increase in departmental space for right-sizing of existing facilities and the provision of space for an increased number of faculty and teaching assistant lines,
- + The provision of research space to support graduate students.

PUBLIC ADMINISTRATION

Projections for the Public Administration department indicate a net decrease in facilities during the building capacity period.

- + A decrease in departmental space for right-sizing of facilities and re-allocation of existing spaces to provide for an increased number of teaching assistant lines and a designated conference room,
- + The provision of research space to support faculty and graduate students.

SOCIAL WORK

Projections for the Social Work department indicate an increase in facilities during the building capacity period.

- + A modest increase in departmental space for the provision of a designated conference room and an out-year increase in facilities for faculty and teaching assistant lines.

STUDENT AFFAIRS ADMINISTRATION

Projections indicate the provision of new facilities for the Student Affairs Administration department during the building capacity period.

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Classroom & Computer Labs	9,552	9,552	4,766	5,248	6,250	4,304
CCPA Departmental Facilities	9,470	9,470	12,299	15,230	18,077	-8,607
Human Development	2,305	2,305	6,170	6,814	7,826	-5,521
Public Administration	4,677	4,677	3,395	3,576	3,660	1,017
Social Work	2,488	2,488	2,734	3,004	3,166	-678
Student Affairs Administration	0	0	0	1,836	1,998	-1,998
Interdisciplinary Programs	0	0	0	0	763	-763
TOTAL	19,179	19,179	17,065	20,478	24,327	-4,303

FIGURE 3.5.5R General Classroom and Computer Space and Departmental Needs for the Downtown Campus

- + The provision of new departmental space for faculty, support staff, and storage, conference and waiting functions.

INTERDISCIPLINARY PROGRAMS

Projections indicate the provision of new facilities for Interdisciplinary Programs during the building capacity period.

- + The provision of new departmental space for faculty, support staff, and storage, conference and waiting functions.

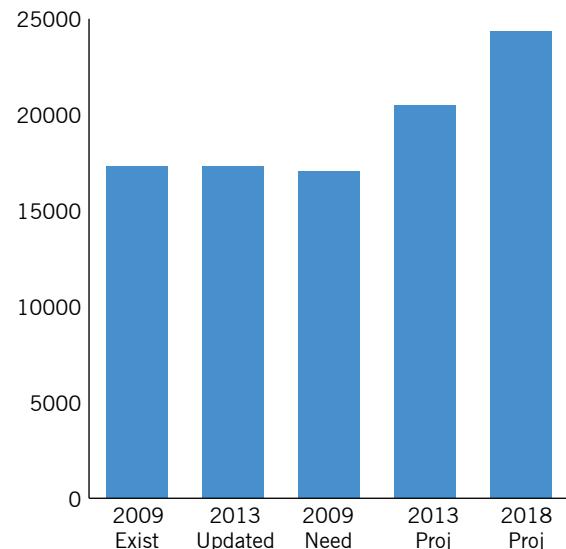


FIGURE 3.5.5S Total ASF Need for College of Community and Public Affairs

BUILDING CAPACITY PERIOD

SUPPORT SPACE

Given the nature of the singular building at the University Downtown Center and its recent construction, support space projections for the downtown campus assume that the same distribution of programs and spaces are maintained.

DEPARTMENT	2009 EXIST	2013 UPDATED	2009 NEED	2013 PROJ	2018 PROJ	2018 DEFICIT
Grant Funded programs	0	0	0	0	0	0
Centers & Institutes	0	0	0	0	0	0
Academic Support	0	0	0	0	0	0
Information Technology	555	555	555	555	555	0
Library	671	671	671	671	671	0
Athletics, Recreation, HWS	0	0	0	0	0	0
Assembly & Exhibition	0	0	0	0	0	0
Student Activity	496	496	496	496	496	0
Child Care Center	0	0	0	0	0	0
Student Health Center	0	0	0	0	0	0
Student Services	4,093	4,093	4,093	4,093	4,093	0
Administrative Services	10,325	10,325	10,325	10,325	10,325	0
Campus Services	162	162	162	162	162	0
Building Services	1,440	1,440	1,440	1,440	1,440	0
TOTAL	17,742	17,742	17,742	17,742	17,742	0

FIGURE 3.5.5T Support Space Needs for the Downtown Campus

3.5.6 SUSTAINED GROWTH PERIOD

The Sustained Growth Period builds on the foundation of the Building Capacity Period, achieving additional facilities capacity to support additional enrollment growth through 2023.

The following section presents the space needs associated with the Sustained Growth Period according to the format:

- + Main Campus, Academic Space
- + Main Campus, Support Space
- + Downtown Campus
- + School of Law

MAIN CAMPUS, ACADEMIC SPACE

Classrooms and Computer Labs

Classroom and computer lab projections for the sustained growth period continue the fundamental goal of improving the overall quality of the classroom inventory at Binghamton University. New construction and renovation projects seek to add spaces that function in the range of 18 to 28 ASF per station, a metric of classroom quality.

Academic Schools and Divisions

Projections for the sustained growth period provide continued expansion for the academic schools and divisions, reflecting enrollment expansion.

The most substantive facilities needs occur within the Harpur College Science and Mathematics Division and the Watson School of Engineering as these programs by nature are more facilities-intensive, requiring a larger ASF to support individual FTEs.

MAIN CAMPUS, SUPPORT SPACE

Enrollment growth in the sustained growth period requires a significant provision of support facilities. The most substantive areas of need include libraries, student activities, as well as an expansion of facilities for athletics, recreation, and health and wellness studies.

MAIN CAMPUS: SCHOOL, DIVISION, OR DEPARTMENT	2018 PROJ	2023 PROJ	2018 TO 2023 DEFICIT
Academic Space	1,103,993	1,239,351	-135,358
Classrooms and Computer Labs	181,830	215,173	-33,343
Harpur College: Fine Arts Division	128,783	136,742	-7,959
Harpur College: Humanities Division	57,361	64,176	-6,815
Harpur College: Science & Mathematics Division	361,520	401,829	-40,309
Harpur College: Social Sciences Division	106,633	114,035	-7,402
Harpur College: Interdisciplinary Programs	2,765	3,265	-500
Harpur College: Non-Majors Programs	6,662	6,770	-108
Watson School of Engineering	187,316	218,051	-30,735
School of Education	14,438	16,503	-2,065
School of Management	28,897	32,737	-3,840
School of Nursing	27,788	30,070	-2,282
Support Space	1,253,972	1,412,535	-158,563
Grant Funded Programs	13,208	15,190	-1,982
Centers & Institutes	41,738	47,999	-6,261
Academic Support	3,268	3,268	0
Information Technology	49,552	51,286	-1,734
Libraries	282,827	314,851	-32,024
Athletics, Recreation, HWS	229,757	280,000	-50,243
Assembly & Exhibition	67,159	67,159	0
Student Activities	187,955	223,374	-35,419
Student Health Center	10,856	10,856	0
Child Care Center	7,979	7,979	0
Student Services	53,790	55,672	-1,882
Administrative Services	107,617	111,922	-4,305
Campus Services	129,586	145,738	-16,152
Building Services	68,680	77,241	-8,561

FIGURE 3.5.6A Sustained Growth Period Space Needs for the Main Campus

SUSTAINED GROWTH PERIOD

DOWNTOWN CAMPUS

Classrooms and Computer Labs

Classroom and computer lab projections for the sustained growth period at the Downtown Campus continue to grow modestly from 2018 to 2023, however do not exceed levels of the existing 2009 provision of space. This indicates further the opportunity to right-size classroom facilities in the building and repurposed gained space for other academic program use.

Academic Divisions

Facilities for academic programs grow modestly during the building capacity period. Growth is related to the expansion of capacity of the individual programs, primarily the Human Development and the Public Administration Programs.

Support Space

Given the nature of the singular building at the University Downtown Center and its recent construction, support space projections for the downtown campus assume that the same distribution of programs and spaces are maintained.

SCHOOL OF LAW

The new School of Law program is anticipated to be on-line and supported by significant enrollment growth during the Sustained Growth Period. Given enrollment targets, the alternate assessment identifies space needs to support the academic program. Due to the anticipated location of the building at an off-campus location, program includes the full complement of support facilities required to support student life. Refer to section 3.5.4 Alternate Assessment of Overall Need, subsection Off Campus Facilities and the New School of Law for program details.

DOWNTOWN CAMPUS: DIVISION, OR DEPARTMENT	2018 PROJ	2023 PROJ	2018 TO 2023 DEFICIT
Academic Space	24,327	26,679	-2,352
Classrooms and Computer Labs	6,250	7,305	-1,055
Human Development	7,826	8,474	-648
Public Administration	3,660	4,067	-407
Social Work	3,166	3,220	-54
Student Affairs Administration	1,998	2,160	-162
Interdisciplinary Programs	763	763	0
Support Space	17,742	17,742	0
Grant Funded Programs	0	0	0
Centers & Institutes	0	0	0
Academic Support	0	0	0
Information Technology	555	555	0
Libraries	671	671	0
Athletics, Recreation, HWS	0	0	0
Assembly & Exhibition	0	0	0
Student Activities	496	496	0
Student Health Center	0	0	0
Child Care Center	0	0	0
Student Services	4,093	4,093	0
Administrative Services	10,325	10,325	0
Campus Services	162	162	0
Building Services	1,440	1,440	0

FIGURE 3.5.6B Sustained Growth Period Space Needs for the Downtown Campus

3.5.7 QUALITATIVE ASSESSMENT

Successful campus planning must consider the full spectrum of factors that impact an institution of higher education in order to be successful. To this end, solutions presented in Phases 4 and 5 of the FMP synthesize findings from three data sets:

- + The Conditions Assessment,
- + The Quantitative Space Needs Assessment,
- + The Qualitative Assessment.

Recommendations from the Conditions Assessment are presented in Phase 2 Assessment of Conditions of the FMP, and recommendations from the Quantitative Assessment are presented in this document Phase 3 Space Needs. These assessments account for qualitative feedback received, however translate the feedback into statements of conditions or numerical needs, rather than presenting it directly.

ROLE OF THE QUALITATIVE ASSESSMENT

The role of the Qualitative Assessment is to present strategic and qualitative feedback received throughout the course of the FMP in a direct manner. Data was gathered through an extensive series of meetings, group discussions, and feedback sessions with University leadership, faculty and staff members, students, and community members, including:

Senior Leadership Meetings. Senior leadership meetings were conducted with the FMP Steering Committee and Planning Committee at regular intervals throughout the planning process. The senior leadership worked with the planning team to imbue the plan with the University's strategic and academic missions, and synthesize qualitative findings from other groups.

The planning team also met with the deans from each academic school for feedback on the strategic direction of entire schools and innovative programming being conducted by individual programs.

Anomaly Program Interviews. Anomaly program interviews were conducted with key campus departments that required a greater level of study. Departments were selected largely based on information requirements to inform the space needs assessments.

Roundtable Discussions. Roundtable discussions drew together a wide array of campus constituents across departments to discuss given themes. University leaders were chosen to participate in the discussions, representing constituents from

the whole of their department or division. Sessions themes included the following:

- + Harpur Fine Arts
- + Harpur Humanities, Social Sciences and Mathematics
- + Harpur Sciences
- + Watson School of Engineering
- + University Libraries
- + Student Services, "One-Stop" Functions
- + Student Academic Support Services
- + International Programs and Services
- + Student Activities & Residential Life
- + Athletics, Recreation, Health & Wellness Studies
- + External Affairs and Outreach
- + Campus Safety

Open Forum Sessions. Three open forum sessions were conducted throughout the FMP to present the plan to the greater campus community. The intent of the sessions was to update members of the campus community on findings and progress of the FMP, and provide a venue for the community to ask questions and express feedback on the process or content. Open forum sessions were addressed the following components of the plan:

- + Phases 1 through 3 Synthesis of Findings
- + Phase 4 Concept Alternatives
- + Phase 5 Final Recommendation

QUALITATIVE ASSESSMENT FINDINGS

Data gathered from qualitative sources has been compiled and analyzed for key themes, presented on the opposite page. These themes drive the direction of the University across programs and departments. Planning in Phases 4 and 5 of the FMP seeks to effectively translate these themes into physical space.

Upgrade facilities for contemporary pedagogy and learning.

Support an interdisciplinary approach to academics that emphasizes innovation and discovery.

Binghamton University recognizes that many of the key issues faced in our world today are complex, extending beyond the

expertise of any one discipline, and require holistic solution finding. As such, the University has established a strategic goal to encourage interdisciplinarity of programming across all schools and divisions. This shift will enable the University to prepare students and conduct research for today's world.

The shift toward interdisciplinary programming yields different facilities requirements than past models that approached program on a purely departmental level. An interdisciplinary approach co-locates key faculty members and other facilities to support high collaboration. For example, such organization occurs within a research cluster of genetics and DNA at Science III where faculty members from the anthropology department are co-located with faculty members from biology around a central core of common facilities.

The qualitative assessment identifies the opportunity to foster future interdisciplinary programming at BU by co-locating key programs to reflect the mission in physical space. Such opportunities include: international programming, including both academic programs and support services; organization within the sciences and engineering around research themes; and within liberal arts programming.

Engage technology in teaching and learning environments to enhance the student experience.

Higher education is experiencing a pedagogy shift from a teaching-centric model to a learning-centric model where students are more active in their pursuit of knowledge and accumulate it through a variety of means. Technology is identified as a tool that may encourage such active learning and engage students of today and tomorrow.

The qualitative assessment identifies the opportunity to increase the use of technology in both formal and informal learning environments at BU. Key programs such as the School of Nursing, the foundational calculus programs within the Mathematics department, and summer distance learning programs are already employing technology for such purposes. Findings from these programs may be applicable to a greater number of courses campus-wide. However, the qualitative assessment identifies constraints to effective incorporation of technology enhanced learning methods. One key constraint is faculty comfort with technology, extending from basic use of hardware and software, to more in-depth re-design of course content. Another constraint is the provision of facilities on campus where faculty members may gain access to technology for experimentation and ultimate adoption. The opportunity exists to provide spaces on campus that include technology-

rich learning environments, and co-locate them with a full complement of support services.

Support the student experience beyond the classroom.

Increase the number of soft spaces across campus for gathering and informal learning.

Contemporary learning-centric pedagogy recognizes that student learning extends well beyond the classroom and that development of the complete student includes not only academic success, but also social interaction and a sense of belonging to the university community.

The physical campus environment supports and encourages such informal learning and social interaction by providing a wide range of places on campus where students, faculty and other members of the university community may come together. Due to past facilities constraints, Binghamton University has a lack of such informal spaces, as nearly all possible spaces within the building have been tapped for active program use.

The qualitative assessment identifies the provision of soft spaces for gathering and informal learning as a critical component to student success and innovation and discovery at BU.

Identify specific areas of need for the Athletics, Recreation, and Health & Wellness Studies programs.

Binghamton University support a wide complement of physical activity programs through its Varsity Athletics, Campus Recreation, and Health & Wellness Studies program. Currently the programs make use of facilities at the East Gym, West Gym, and Events Center, as well as outdoor fields.

The space needs assessments indicate the campus to be overbuilt with respect to these facilities, however the qualitative assessment returned a significant quantity of data indicating that additional facilities are required to support the existing campus population and for growth. Space needs for this program area must be understood in the greater context of need on campus, specifically on the academic side. However, recognizing the role of physical activity in the complete BU student the opportunity exists for the FMP to identify specific space needs that will yield a high return for limited facilities investment. Specific identified areas of need include: indoor

court space for use by all programs, multipurpose rooms, classrooms for Health & Wellness Studies, an expanded student academic success center for Athletics, and improved quality outdoor field facilities.

Strategically locate key facilities to support student access and improved delivery.

A number of services offered throughout the campus support the student academic experience and ensure student success. In the context of continual resource constraints, BU has become strategic in its delivery of key student support services.

The qualitative assessment identifies the opportunity to reflect this strategic approach in physical space, considering carefully the location of services on campus and the relationship between related programs or departments. Student support services may be located in high-activity zones at the core of campus, for easy access. Key components may be co-located to maximize resources, improve delivery to students, while also improving access, such as financial support services of financial aid, bursar, student accounts, with graduate and undergraduate admissions.

Employ key facilities and technology to leverage limited staff and facilities resources.

Binghamton University is advanced in its use of technology to deliver services for both academics and support. Examples include the full complement of resources offered through the University Libraries, as well as online access and account services for student financials.

The qualitative assessment identifies that use of technology has been critical for the University in accommodating an increased student body in the context of resource limitations. Technology allows basic functions to be automated, and ensures staff are available to assist with case by case needs. However, the assessment also notes that the introduction of technologies must include support services on both the IT side as well as the user experience side.

Project the spirit of Binghamton University.

Highlight the University's emphasis on the global experience.

Binghamton University emphasizes the global experience through on-campus academic programs, study abroad

programs, research initiatives, and support services for its large population of international students and faculty members.

The qualitative assessment identifies this as a highly unique component of the University, particularly within the SUNY system. The opportunity exists to showcase BU's commitment to internationalization in the experience of the physical campus by co-locating key programs and making them visible to the greater campus community.

Showcase the University's rich history in the liberal arts.

Binghamton University has a rich history in the liberal arts. The institution that is today a SUNY University Center was founded as Harpur College in 1946. Today, Harpur College of Arts and Sciences continues to serve as the backbone of the University as its liberal arts and sciences college and largest academic unit. A culture of depth and inquiry, rooted in study of the liberal arts, permeates all components of BU.

The qualitative assessment identifies the opportunity to highlight BU's history in the liberal arts and Harpur College's position today as a significant component of the overall University experience. This may be achieved by co-locating key programs, supporting innovative program initiatives such as the interdisciplinary Philosophy, Politics, and Law (PPL) program, and showcasing support functions.

Clarify campus wayfinding for improved user experience.

Binghamton University provides a campus environment with an atmosphere that is conducive to learning, safe for members of the University community, and attractive and welcoming to visitors and prospective students. The campus itself serves a myriad of functions, such as facilitating circulation and movement between built nodes and providing designated places to support many activities.

The qualitative assessment identifies the opportunity to build on the quality of the existing campus to continue to project the spirit of the University in the physical spaces. Specific spaces on campus may be defined to have unique characteristics, reflecting the wide variety of interests and focuses of the University community. Vehicular and circulation routes may be clarified for clearly communicated routes between major nodes and the reduction of conflict points. Signage may be provided to brand the campus and provide users with a stream of information aiding them in navigation.

3.6 Utilization Capacity

3.6.1 FACILITY CAPACITY

Binghamton University's existing campus has limited available facilities capacity. In its current state, the University is operating at a more efficient ASF per student FTE than that indicated as needed in the Alternate Assessment.

With the addition of key new facilities including Science V, ITC Engineering & Science, and ITC Center of Excellence, a modest amount of space will be vacated at BU's main campus. Renovation and program relocation associated with this space will serve as the crucial first step in catalyzing a series of phased renovations of many of the University's legacy facilities over the course of the FMP. As the quantity of available swing space on the campus is limited, it is important to approach first moves and subsequent in a highly strategic manner.

3.6.2 CAMPUS CAPACITY

Binghamton University's main campus consists of over 600 acres of land, however development is dramatically limited due to land coverage by natural areas. Additionally, outdoor athletic and recreation fields along the north end of the campus further limit development, as they are desired to be retained. While these constraints limit the available land area for development, the campus is anticipated to have sufficient capacity to support future development associated with 2023 enrollment growth.

Expansion of capacity at BU will occur through both additions to existing facilities and the construction of new buildings. While additions will play an important role in improving circulation and connectivity on campus, substantive construction of new buildings will be required for the University to gain the magnitude of space required to support enrollment growth.

The most desirable locations for new construction capacity expansion at BU are those sites in and around the Brain area, due to adjacency to existing facilities and the presence of infrastructure. Key opportunities for near-term expansion exist at the East Campus and at the Visitor's Parking Lot, south of the Library. To achieve longer-term facilities expansion, construction of new buildings will be required either on existing parking lots or open spaces.

