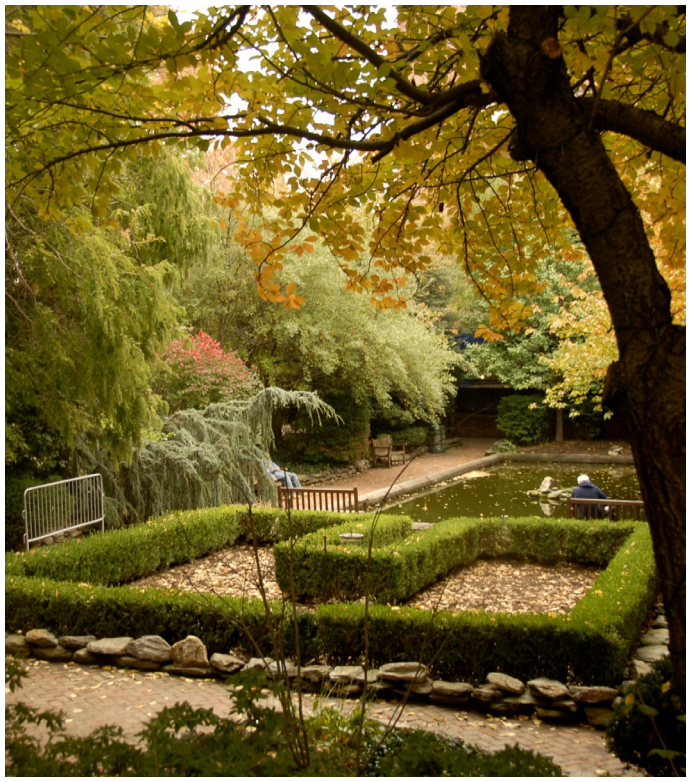
CUNY Brooklyn College
Master Plan Amendment

Brooklyn, New York



Prepared by

Pfeiffer Partners Architects / Scott Blackwell Page / ARUP / VJ Associates

September 2011

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LIST OF TERMS

DASNY	Dormitory Authority of the State of New York
DDCM	Department of Design, Construction and Management
DEP	Department of Environmental Protection
DOT	Department of Transportation
DX	Direct Expansion
FTEs	Full-Time Equivalent Student
gpm	Gallons Per Minute
gsf	Gross Square Feet
HVAC	Heating, Ventilation, and Air-Conditioning
IT	Information Technology
LEED	Leadership in Energy and Environmental Design
MER	Mechanical Equipment Room
MTA	Metropolitan Transportation Authority
nasf	Net Assignable Square Feet
The Plan	The Master Plan Amendment
VAV	Variable Air Volume

ACKNOWLEDGEMENTS

The Master Plan Team worked closely with the City University of New York (CUNY) Office of Facilities Planning, Construction and Management under the direction of Vice Chancellor Iris Weinshall and with the Brooklyn College Working and Steering Committees under the leadership of President Gould and Provost Tramontano to review the team's analytical findings, confirm goals, strategies, program and priorities, and to identify the elements of The Plan most suitable to meet the College's goals over the next ten years.

The Working and Steering Committees were composed of a cross-section of senior administration, faculty, staff and students as well as CUNY directors and staff. The Master Plan Team extends our gratitude for their guidance, dedication, and leadership throughout the process.

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The Master Plan Team led by Pfeiffer Partners Architects, included:
Scott Blackwell Page - for academic programming
ARUP - for mechanical, electrical, and plumbing engineering
VJ Associates - for cost estimating

LIST OF ILLUSTRATIONS

FORWARD FROM THE PRESIDENT

Brooklyn College
The City University of New York

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In the 1930s, when Brooklyn College moved from temporary facilities in downtown Brooklyn to its permanent home on Bedford Avenue, the new campus provided a beautiful setting and, at the time, state-of-the-art learning environment for its student body. Its stately Georgian architecture echoed the collegiate atmosphere of highly respected institutions like the University of Virginia, its inspiration.

Much has changed over the past eight decades, but the beauty of our campus has not faded. However, the classrooms, laboratories, and studios contained within have not kept pace with the changing needs for a learning environment of the highest caliber. The new facilities master plan for Brooklyn College presents a vision for the future in which the quality of our infrastructure will match the quality of our academic programs.

Brooklyn College is recognized for its distinguished faculty and outstanding undergraduate and graduate degree programs housed in five schools: Business; Education; Humanities and Social Sciences; Natural and Behavioral Sciences; and Visual, Media, and Performing Arts. Our 17,000 students are provided a strong foundation in the liberal arts, regardless which of our 160 degrees they choose to pursue, and they represent the rich cultural, ethnic, and economic diversity of New York City and the borough of Brooklyn. The overarching goal of our new facilities master plan is to provide a physical environment that will further enhance the academic life of Brooklyn College. The plan recommends a course of action that includes the construction of several new facilities, the demolition of current structures where appropriate, the modernization of our current infrastructure, and the enhancement of open space, all in a manner consistent with our commitment to sustainability.

The plan acknowledges that many of the issues associated with our current facilities are due to age and obsolescence, and therefore charts a course for renovation and renewal. It balances the need for new construction with a clear focus on modernizing existing structures to support a twenty-first century education. Our plan also endeavors to site academic and administrative departments with proper adjacencies in order to increase efficiency and foster collaboration.

Adopted in 1995, the college's previous facilities master plan articulated the vision for a number of positive infrastructure changes on our campus. It outlined plans for the West Quad Center, which opened in fall 2009 and now provides a central location for student services and athletics; the Leonard & Claire Tow Center for the Performing Arts, currently under construction, which will provide state-of-the-art rehearsal, performance, and production space for our music and theater students and faculty; and the Roosevelt Science Teaching Commons, for which architectural schematic design is currently underway. I am confident that our new facilities master plan will serve us well as we build on our recent and ongoing improvements, continue to modernize existing facilities, allocate our space in a more logical manner, and continue to make prudent and forward-looking investments in our infrastructure.

I would like to thank everyone who has contributed to the extensive planning process. Our new facilities master plan will enable Brooklyn College to continue providing an excellent academic experience for generations of students to come.

Sincerely,

Karen L. Gould
President

CUNY

MISSION, OBJECTIVES, GOALS

Mission Statement of Brooklyn College and Its Importance

"*Brooklyn College of the City University of New York transforms lives by providing access to outstanding undergraduate and graduate programs in the arts and sciences, business, and education and a vibrant core curriculum in the liberal arts. We are an urban, public institution, proudly situated in one of the most dynamic and diverse communities in the country…..*" This Mission Statement developed by the College is at the forefront of each action it takes -- whether formulating an academic initiative, or making improvements to the physical infrastructure. At every level, the Mission Statement provides a framework for the decision making that guides the College as it advances from one decade to the next.

Brooklyn College Today

As one of New York City's leading educational institutions, Brooklyn College offers a nationally acclaimed core curriculum that attracts some of the City's top students. Fifteen percent (15%) of the current student body graduated at the top ten percent (10%) of their high-school class, and over half of the students are transfers from other academic institutions. Diversity continues to be a hallmark of the College, with over 17,000 students speaking over 95 different languages while representing 100 different nations from around the world. With many students born outside of the United States, they bring a particular cultural richness to the dynamics of the campus. The College's faculty is also "top of its class," with many faculty members recognized as leaders in their field and the majority holding advanced degrees. In the past ten years, the College has embarked on revitalizing and re-energizing the academic environment at all levels. First, through the hiring of 250 new full-time members -- half of the entire faculty -- and second, with the recent hiring of both a new Provost and a new President.

Goals of the Master Plan Amendment

One of the *Core Commitments* of the College, as outlined in the Draft Strategic Plan, is to "build and renovate a physical plant and infrastructure that support our academic community in the pursuit of our mission". Therefore, an overarching goal of the Master Plan Amendment is to provide a physical environment that enhances and reinforces the academic and pedagogical aspirations of Brooklyn College. To achieve this and to advance the themes of the Strategic Plan by the year 2020, the following five goals and objectives have been set forth in the Master Plan Amendment:

Goal 1: Emphasize students as the focus of the Brooklyn College experience.

(1) In general, allocate the most prominent spaces to those activities and functions that will benefit the largest portion of the campus community. Locate core activities and Student Services "front and center" on campus.

(2) Locate Student Services, daily destinations and collegial spaces on the entry levels of buildings so they are easily accessible and visible to students.

(3) Cluster general education classrooms on the lower levels of buildings where possible, dedicating the upper floor to offices, laboratories, and other spaces specifically associated with individual Schools.

Goal 2: Bring image, identity and visibility to each of the Schools in support of their academic mission.

(1) Consolidate, aggregate and cluster previously dispersed departments into a single building where possible.

(2) Identify each School with an individual building, creating an identifiable "home" for each of the five Schools.

(3) Locate Schools or entities that have both an academic and a community function on the periphery of the campus.

Goal 3: Foster social interaction among students and between students and faculty.

(1) Provide study areas, lounges, cafés and computer labs where students come together informally for discussions, study or relaxation throughout the campus.

Goal 4: Promote collaboration between departments.

(1) Reorganize spaces in existing buildings to improve adjacency of functions.

(2) Provide small seating areas and expanded corridors throughout buildings where faculty can meet together informally.

Goal 5: Activate the two major landscape quadrangles of the campus.

(1) Locate student destinations and public spaces at the entry levels of buildings facing the quadrangles. Where possible, create new "window bays", visually connecting social spaces to the outdoors.

(2) Provide landscape improvements that are student-focused and encourage gathering and socializing.

(3) Encourage any new construction on the West Quadrangle to place entries at the same elevation of the adjoining open space, creating easily accessible buildings as well as providing better visual and physical connections between buildings and open spaces.

(4) Integrate art in the landscape, creating a sculpture garden throughout the entirety of the campus.

Goal 6: Increase efficiencies in campus operations.

(1) Consolidate School, administrative and program spaces and activities where possible to increase efficiencies.

(2) Institute recently adopted Sustainability Guidelines in new construction and renovation projects, achieving LEED Silver certification on all major projects. Institute measures to maximize energy efficiency.

Each of these goals and objectives will be explored more fully in the following chapters.

LIST OF DEGREE PROGRAMS

GRADUATE DEGREES

M.A.
- Art History
- Art Teacher
- Biology
- Biology Teacher
- Chemistry
- Chemistry Teacher
- Computer And Information Science
- Economics
- English (See Also Creative Writing)
- English Teacher
- Experimental Psychology
- French
- French Teacher
- Geology
- History
- Industrial And Organizational
- Judaic Studies
- Liberal Studies
- Mathematics
- Mathematics Teacher (See Also Education)
- Mental Health Counseling
- Middle Childhood Education Teacher
- Music
- Music Teacher
- Physics
- Physics Teacher
- Political Science
- Social Studies Teacher
- Sociology
- Spanish
- Spanish Teacher
- Speech
- Theater

M.F.A.
- Art
- Creative Writing (See Also English)
- Performance And Interactive Media Arts
- Television Production
- Theater

M.Music
- Music Composition
- Music Performance

M.Public Health
- Community Health

M.P.S.
- Business Information Systems

M.S.
- Accounting
- Computer Science and Health Science
- Exercise Science and Rehabilitation
- Information Systems
- Nutrition (See also Community Health)
- Physical Education
- Physical Education Teacher (See Also M.S. In Ed.)
- Speech-Language Pathology
- Television and Radio

M.S. In Ed.
- Childhood Education Teacher (Grades 1–6)
- Early Childhood Education Teacher (Birth–Grade 2)
- Educational Leadership: School Building Leader
- Educational Leadership: School District Leader
- Health and Nutrition Sciences: Health Hood Education Teacher
- Literacy Teacher
- Middle Childhood Education
- School Counseling
- School Psychologist
- Teacher Of Students with Disabilities

Advanced Certificate
- Autism Spectrum Disorders
- Bilingual Education
- Gifted Education
- Grief Counseling
- Music Education
- Performance and Interactive Media Arts
- School Counseling
- School Psychologist

BACCALAUREATE DEGREES

B.A.
- Africana Studies
- American Studies
- Anthropology
- Art
- Art History
- Biology
- Biology Teacher
- Chemistry
- Chemistry Teacher
- Classics
- Comparative Literature
- Early Childhood Special Education
- Economics
- English
- English Teacher
- Environmental Studies
- Film
- French
- French Teacher
- Geology
- Health and Nutrition Sciences
- History
- Italian
- Italian Teacher
- Journalism
- Judaic Studies
- Linguistics
- Mathematics
- Mathematics Teacher
- Music
- Philosophy
- Physics
- Physics Teacher
- Political Science
- Psychology
- Puerto Rican and Latino Studies
- Russian
- Social Studies Teacher
- Sociology
- Spanish
- Spanish Teacher
- Speech and Hearing Science
- Speech

B.A. (Continued)
- Speech-Language Pathology, Audiology, Television and Radio Broadcast Journalism
- Theater
- Women's Studies B.A.

B.B.A.
- Business Administration
- Art
- Creative Writing
- Theater

B.Mus.
- Composition
- Music Education (all grades)
- Performance

B.S.
- Accounting
- Biology
- Broadcast Journalism
- Business Information Systems
- Business, Management, and Finance
- Chemistry
- Computational Mathematics
- Computational Mathematics
- Computer and Information Science
- Geology
- Health and Nutrition Sciences
- Mathematics
- Physical Education
- Physical Education Teacher (all grades)
- Physics
- Psychology

Certificate
- Accounting
- Computers and Programming
- Film Production

Teacher Certificate
- Childhood Bilingual Education
- Childhood Education
- Early Childhood Education

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Brooklyn College: Cast Iron Sign at Hillel Gate Entry

I. EXECUTIVE SUMMARY

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A. Introduction to Brooklyn College

As an educational institution, the City University of New York (CUNY) dates back to 1847 when the Free Academy, later to be known as City College of New York, was first established. Hunter College followed soon after, opening its doors in 1870. Fifty years later, in 1930, CUNY embarked upon the third of its academic institutions, establishing Brooklyn College. Since that time, the College has witnessed many changes – from the creation of the campus itself with its lush landscaped quadrangle framed by stoic, Georgian inspired buildings to the recently completed contemporary West Quad Building. While much has changed over the decades, some things remain constant, as Brooklyn College continues to serve an economically and demographically diverse community, much as it did more than eighty years ago.

In 2003, Princeton Review ranked "Brooklyn College number one in the country for the beauty of its campus, outshining such schools as Vassar College, Bryn Mawr College, and Stanford University." It went on to rank it in the top five colleges nationwide for best academic value and for having an environment where students from different backgrounds interact. As part of the same evaluation, the College was also ranked number nine in the nation for being situated in a "great college town."

Today, Brooklyn College serves close to 17,000 exceptional students, supported by an equally exceptional faculty. The College's Core Curriculum established in the 1980's is still nationally acclaimed.

Since the previous Master Plan was adopted in 1995, the campus has witnessed significant improvements, with new facilities completed, underway or in the planning stages. LaGuardia Library has been fully renovated and expanded to provide students with learning spaces, computer labs and technology; the new West Quad Building opened in the fall of 2009 and offers a wide array of athletic and recreational facilities as well as a "one stop shop" for student services; and William James Hall is being partially renovated, re-opening itself to the West Quadrangle in the fall of 2011. In May 2011 the Leonard and Claire Tow Center for the Performing Arts broke ground. Slated to open in the spring of 2014, it will allow students and faculty to have access to acoustically superb practice, rehearsal and performance spaces for music and theater alike. Finally, to address the College's antiquated science facilities, a new and technologically advanced Science Building is in the planning stages. On a more modest scale, the College has created a number of smart classrooms providing new instructional spaces.

LaGuardia Library Tower and Lily Pond

While the College has much to be proud of and has made great strides both academically and physically over the past decade, there is still work to be done if the campus is to continue to offer the types of facilities both students and faculty expect from today's educational institutions. The Master Plan Amendment (The Plan), linked conceptually to the College's Strategic Plan, sets forth a series of recommendations for new, renovated, and expanded buildings that will aid in the College's achievement of its academic goals and aspirations. Based on the College's approved enrollment projections, The Plan provides a detailed space program outlining the anticipated facility needs of the campus between now and 2020, followed by a series of detailed strategies for accommodating these needs, as well as an estimate of the costs to implement them. Recognizing that both the availability of funds and the College's priorities will influence how and when change can occur, The Plan recommends how improvements may be phased.

B. Strategic Change

Over the past two years since The Plan efforts began in earnest, a number of significant changes have occurred at the College which will influence its future. President Kimmich, after serving as Brooklyn College's President for more than a decade and overseeing many of the campus's physical improvements, retired in the summer of 2009. President Karen L. Gould began her tenure in August 2009, joining Dr. William Tramontano who started as Provost in July 2008. Under their leadership, the College has embarked upon a major academic transformation and re-structuring, moving from a College of departments and programs to one of Schools led by Deans. In doing so, Brooklyn College aligns itself with the organizational structure of CUNY's other senior colleges. Faculty, academic programs, and departments will now be part of one of the following: (1) School of Business, (2) School of Education, (3) School of Humanities and Social Sciences, (4) School

of Natural and Behavioral Sciences and (5) School of Visual, Media and Performing Arts. The new School structure will provide greater opportunities for interdepartmental and interdisciplinary support and collaboration with a decanal leadership that encourages creative cross disciplinary undertakings.

Concurrently and under the leadership of CUNY, the President and the Provost, with campus-wide community input, Brooklyn College has embarked upon a Strategic Planning effort. When adopted, the Strategic Plan will guide academic, administrative, physical and financial decisions at the College over the next five years from 2011 – 2016. The timing of the transformation in the College's academic structure, combined with the Strategic Planning efforts, is fortuitous relative to The Plan, in that recommendations for physical improvements that support and enhance the broader level of institutional change can be set forth.

Ingersoll Hall East Quadrangle Façade and Entrance

C. The Process

The Plan represents an almost two-year-long inclusive, transparent process that included Town Hall Forums open to the entire Brooklyn College community; a website suggestion/comment box soliciting input from students, faculty and staff with regular updates summarizing the team's ongoing efforts; over 100 one-on-one interviews; and meetings with the Working and Steering Committees at key points throughout the process. This broad input, combined with in-depth reviews, relevant benchmarking of other institutions and an evaluation of the College's existing facilities and infrastructure has shaped the ideas and recommendations put forth in The Plan.

D. The Master Plan Amendment Document

The Plan is not intended to dictate change but rather to provide a framework for decision making regarding how and when improvements occur. It outlines proposed recommendations, their costs, and potential sequencing of projects. The Plan recognizes the campus as a systemic organism whereby each alteration affects subsequent ones. While no plan can accurately predict the future, it can anticipate likely scenarios, and in doing so outlines for the College the ramifications of those scenarios, recognizing that each change, no matter how small, has a cascading effect on future opportunities.

The Master Plan Amendment:

1. Aligns with the College's Strategic Plan.
2. Outlines projected space needs through 2020.
3. Evaluates the College's existing buildings and infrastructure.
4. Provides recommendations for facility upgrades, renovations, and new construction.
5. Recommends a number of planning strategies that when implemented over time, will enhance the quality of the educational experience for students and faculty alike.
6. Proposes a phasing plan suggesting an order of proposed projects.
7. Estimates the costs of construction associated with various recommendations.

E. The Campus and Its Buildings

Brooklyn College is located in the heart of Brooklyn, surrounded by a mix of neighborhoods that range from the stately single-family residential area of historic Midwood with its large homes, generous landscape setbacks and tree-lined streets to the dynamic and vibrant mixed-use retail and multi-family residential development along Nostrand and Flatbush Avenues, two of the Borough's most populated commercial streets. With convenient access from the New York City's Metropolitan Transportation Authority (MTA) public subway and bus systems, the College is easily accessible to students throughout the City as well as the Borough of Brooklyn.

The College sits in the middle of a densely developed area. Occupying 37.6 acres of lush, expansive and well-manicured green space, the campus today is primarily a mix of the original Georgian-inspired buildings constructed in the 1930's and those built in the 1950's – 1970's, with architecture representative of that era. The exception is the new contemporary West Quad Building that sits at the west end of the campus, on axis with LaGuardia Library. Gated entries provide secure access to the College at key locations, including Bedford Avenue, which bisects the campus in a north-south direction, as well as at the intersection of Campus Road and Hillel Place. Other secondary entries are also provided from Campus Road and Avenue H. Once inside, walkways traverse the campus, providing a pedestrian-friendly environment. Although the campus has an overall sense of cohesiveness, the buildings give few if any clues to the activities housed within, transmitting little of the energy and vitality that one would expect of an educational environment with close to 17,000 students. Furthermore, the College lacks the types of informal gathering areas and social/collaborative spaces that are critical to a collegiate environment today.

F. A Program for Growth

While Brooklyn College's current enrollment indicates a small decline in degree-seeking undergraduates, last fall (2010) the number of full-time freshmen applicants who named Brooklyn College as their first choice within CUNY was up 40% over the previous period, with transfers from within and outside CUNY up even more significantly. While the future is difficult to predict, the College administration, working closely with their colleagues at CUNY, developed its enrollment projections, estimating an increase in student enrollment of approximately 2% by 2020. These projections, benchmarking efforts comparing the College with similar institutions, meetings with various department heads, in-depth discussions with the Provost, and consideration of CUNY's established space standards provide the foundation for the anticipated 2020 space needs.

Aerial of Brooklyn College and the Surrounding Neighborhood


LaGuardia Library Tower and the Populated East Quadrangle

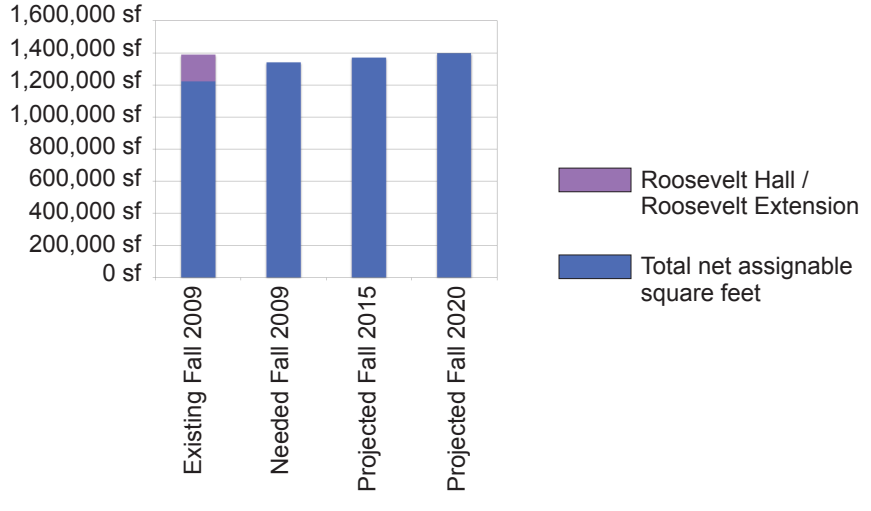
G. Space Needs

Based on enrollment projections and the programs and activities offered at the College, the campus will need approximately 1,465,000 net assignable square feet (nasf) by the year 2020. This is divided equally between academic space for the Schools (711,000 nasf) and Support Functions (679,000 nasf) necessary to operate and maintain the College. The second category includes all of the Administrative Support functions as well as Campus Operations, Food Services, the Library, Recreational/Athletic Facilities, etc. The remainder of the required square footage is for Academic Functions (63,800 nasf) and Hosted Entities (10,700 nasf).

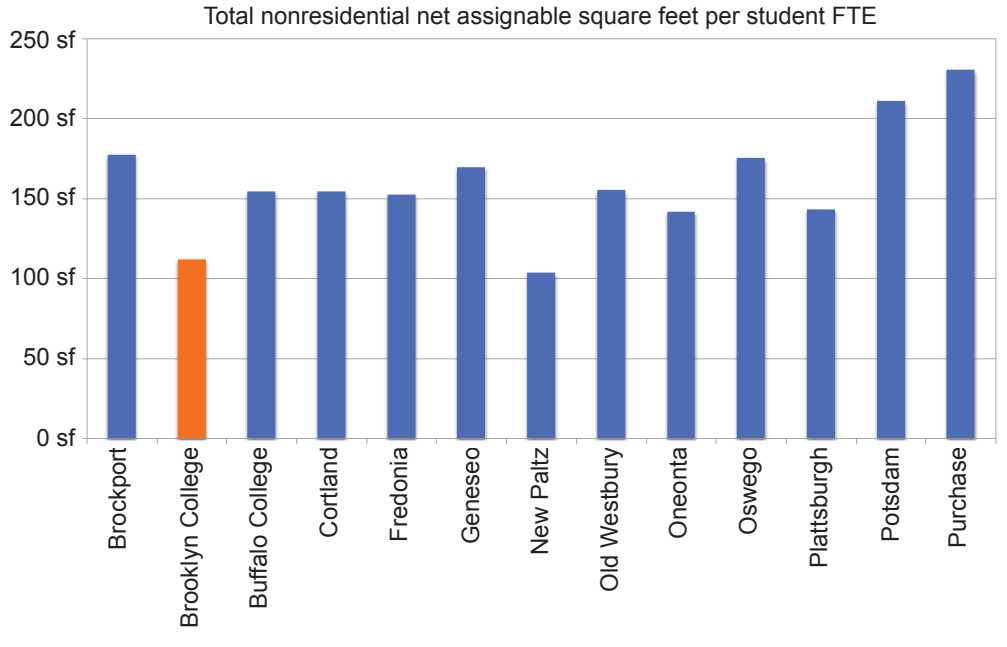
The campus today has 2,365,700 gsf distributed in eleven buildings. The majority of this square footage, over 60%, is housed in three buildings that are the focus of academic activities on the campus: Boylan Hall (321,800 gsf), Ingersoll Hall and Ingersoll Extension (602,200 gsf), and William James Hall (287,200 gsf). The other primary academic building is Whitehead Hall (109,400 gsf). The total net assignable square feet totals just short of 1.41 million, and is less than the College's projected long-term space needs. Furthermore, this includes Roosevelt Hall/Roosevelt Extension, slated for demolition to make way for the new Phase 1 Science Building, and the West End Building (WEB), which is a "temporary structure" that will one day also be replaced. With the demolition of these two buildings, the College will lose approximately 210,000 nasf of space, bringing the total available net assignable square feet to approximately 1.39 million. Therefore, to meet its projected 2020 need of 1.41 million nasf, the College will need to add another 210,000 nasf, or approximately 400,000 gsf.

While Brooklyn College compares relatively favorably with its CUNY counterparts in terms of nasf/student full-time equivalent (FTE), it ranks below most of the SUNY campuses. Additionally, the needs at Brooklyn College are not only focused on the quantity of space required but also on the quality of this space. Much of the instructional classrooms, laboratories, offices, and support functions have not been renovated in decades. The chief complaint by students and faculty concerns the quality of the classrooms, followed closely by the lack of public spaces and social areas.

In the future, most of the Schools will require more space than they have today, with the greatest shortfall being the School of Business. With only 6,800 nasf, it falls far below the nasf/FTEs of other comparable schools. To meet its long-term needs appropriately, the School will require approximately 29,000 nasf, exclusive of classrooms. On the other extreme, the School of Natural and Behavioral Sciences occupies close to 280,000 nasf and in the future will require only approximately 253,000 nasf. Therefore, the School of Natural and Behavioral Sciences space needs are not in terms of quantity, but



Brooklyn College's Existing and Projected Space Needs



Benchmarking Against SUNY Campuses

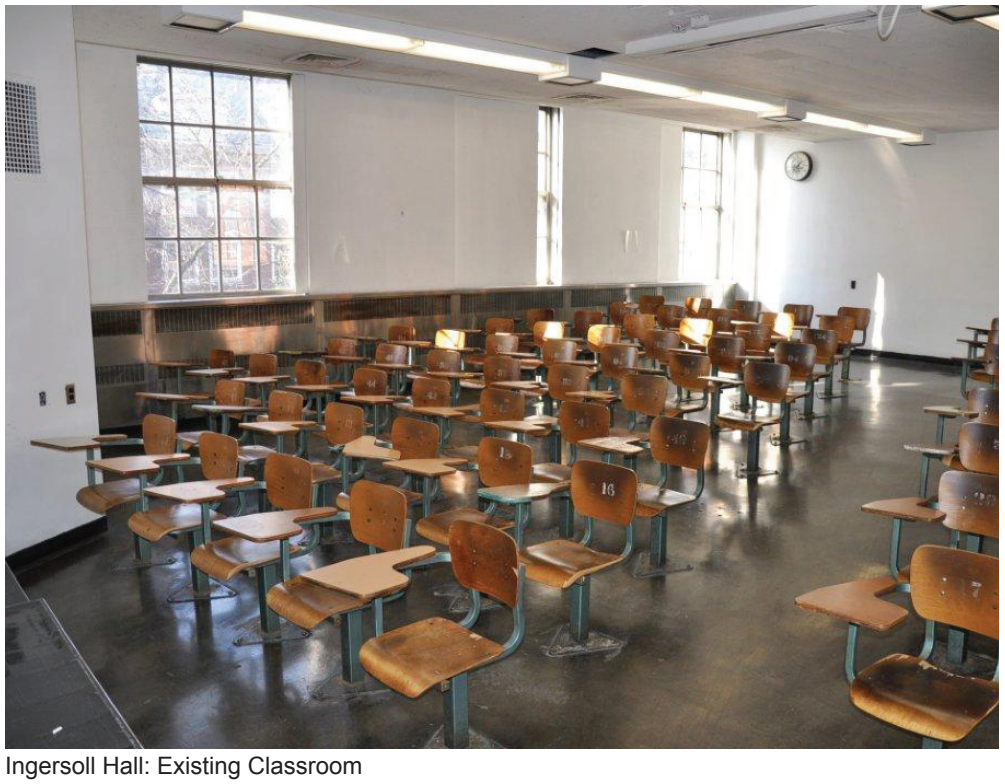
rather quality, with a deficit in properly equipped research and instructional labs with the necessary environmental controls. Since classrooms are by and large shared space, they have been tracked separately. The following is a summary of the existing and projected space needs of each of the Schools, with classroom space accounted for separately.

Academic Schools and Classrooms Space	**Existing NASF**	**Projected Fall 2020 NASF**
Classrooms and Computer Labs	140,413	75,317
School of Business	6,788	29,169
School of Humanities and Social Sciences	60,059	84,883
School of Natural and Behavioral Sciences	279,966	252,908
School of Education	17,746	34,950
School of Visual, Media and Performing Arts	84,980	134,076
Total	**589,952 nasf**	**711,303 nasf**
Delta		*121,351 nasf*

Support Functions will also require additional facilities in the future, with the exception of the Library and Recreational/Athletic facilities, which have been renovated and expanded in recent years. In particular, Student and Faculty Activities, Student Services, and Administrative Services will need more space to support the College's growing academic programs and to make up for the existing shortfall of student-oriented spaces. Together these functions will require approximately 78,000 nasf more than what is provided today on campus. In the future, much of the focus will be on providing "non-programmed" spaces such as student lounges, informal study spaces, "hang-out" spaces, etc., creating areas where students can come together in small groups to engage in dialogue and discussions. Providing spaces where students feel welcomed and encouraged to stay is particularly important for a campus such as Brooklyn College that is primarily commuter-based. The following summarizes the major space needs for Support Functions:

Support Functions*	**Existing NASF**	**Projected Fall 2020 NASF**
Technology	10,454	12,081
Student and Faculty Activities	90,556	113,944
Student Services	32,744	44,589
Administrative Services	44,197	67,374
Campus Services	80,317	92,281
Total	**258,268 nasf**	**330,269 nasf**
Delta		*72,001 nasf*

**The above summary does not include Grant Funded Programs, Library, Assembly and Exhibition, Athletics, Physical Education and Recreation, or Child Care, which together total 343,461 nasf today, increasing to 348,658 nasf in 2020.*



Ingersoll Hall: Existing Classroom

H. Program Organization and Connectivity

The College's recent transformation to a School structure, combined with the need to offer more student oriented spaces, provides the conceptual framework for The Plan. The Plan focuses on recommendations that will enhance the academic environment, foster collegiality at all levels, and provide facilities that are commensurate with the quality of faculty and educational offerings at Brooklyn College. The overriding goals for The Plan are:

Goal 1: Emphasize students as the focus of the Brooklyn College experience.
Goal 2: Foster social interaction between students and between students and faculty.
Goal 3: Bring image, identity and visibility to each of the Schools in support of their academic missions.
Goal 4: Promote collaboration between departments.
Goal 5: Activate the two major landscape quadrangles of the campus.

To achieve these goals, The Plan recommends five important strategies that will guide the College's decisions relative to space needs and allocations over the coming decade. These include:

1. Consolidate Schools. Reallocate and reorganize space as necessary such that each School has its own building or buildings to "call home." The exception to this is the School of Visual, Media and Performing Arts which will remain distributed due to the specialized nature of these spac es.

2. Distribute Social Spaces. Locate social spaces throughout the campus such that each building has appropriate spaces for students to gather, fostering interaction with their peers as well as faculty members.

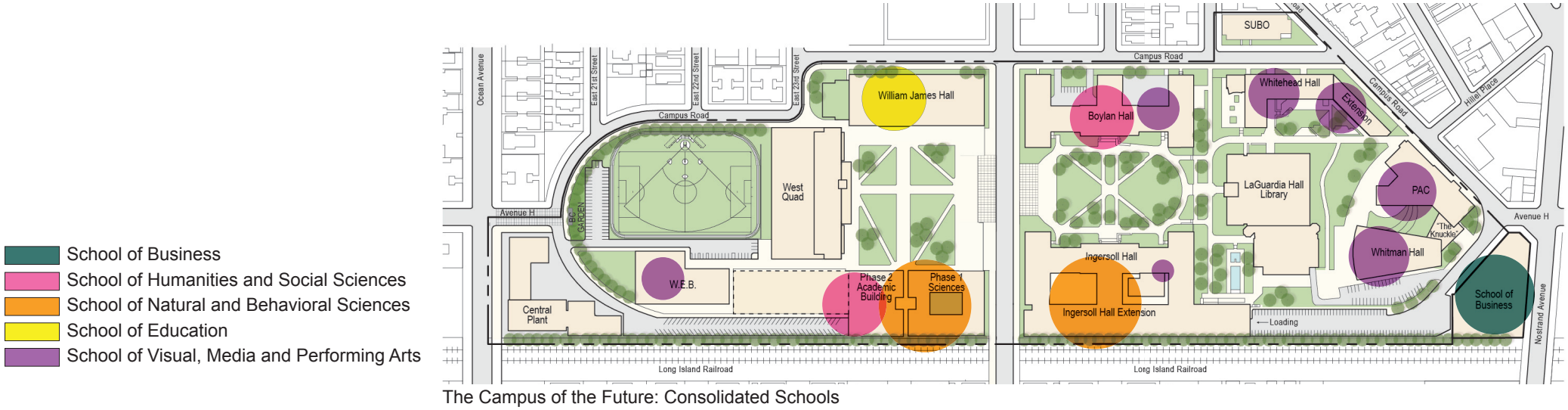
3. Emphasize Student Services. Students are the heart of Brooklyn College and therefore, the services that support them from Academic Advising to Career Development, should be highly visible, easy to find, and accessible to all. In addition, as buildings are renovated, classrooms should be consolidated to a single floor or multiple floors and adjacent to elevators and stairways, increasing their accessibility and improving way-finding.

4. Activate and Reinforce the Quadrangles. Locate programs and activities to bring life and vitality to the East and West Quadrangles of the campus, blurring the real and perceived boundary between the interiors and exteriors of buildings.

5. Consolidate Campus Services. Build and/or renovate existing spaces to allow for the consolidation of Campus Services, making operations more efficient.

Example of Social Spaces for Students to Gather

Student Activated East Quadrangle

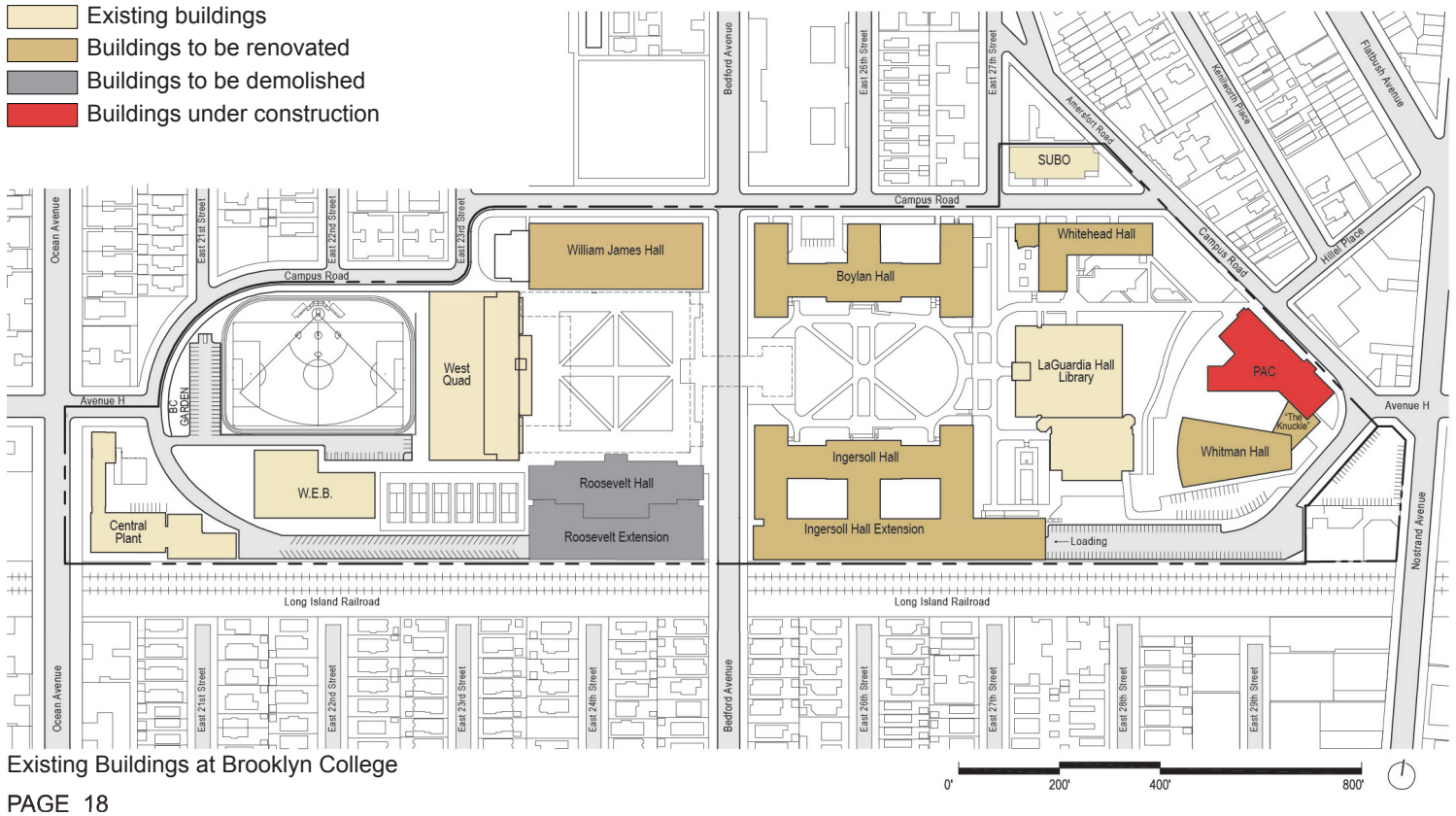


The Campus of the Future: Consolidated Schools

I. Improvement Projects and Recommended Sequencing

The Plan outlines several projects that will enhance the academic and educational environment at Brooklyn College. These projects range from the interior renovation of existing buildings to implementing campus-wide sustainability initiatives. Underlying all of the improvements is the upgrading of the College's infrastructure, including enhancements to building envelopes, replacing most of the mechanical and electrical systems, and upgrading plumbing and fire protection services, the majority of which have surpassed their anticipated life span, and in some instances, date back to the building's initial construction. With limited swing space on campus, many of these improvements will require sequencing to minimize disruptions and the number of moves of any individual program or department. Other projects, such as the School of Business, are less restricted in terms of timing and can commence when funds become available or opportunities arise.

The following outlines the major capital improvement projects recommended in The Plan. They appear in the order in which they are currently proposed to be implemented.



Existing Buildings at Brooklyn College

1.A. Campus Services at Ingersoll Hall / Ingersoll Extension

Roosevelt Hall/Roosevelt Extension houses a significant amount of space for Campus Services. It also includes one of only two loading docks on campus, a pre-requisite for certain functions associated with Campus Services. The other loading dock is in Ingersoll Extension. Prior to demolishing Roosevelt Hall/Roosevelt Extension for the new Phase 1 Science Building, a new infill space of approximately 5,170 nasf will need to be constructed in the east courtyard of Ingersoll Hall/Ingersoll Extension to provide storage and support for Campus Services. This will make up for a portion of its space deficit when Roosevelt Hall/Roosevelt Extension is demolished. Creating this space will require the relocation of existing chemical storage currently located in the courtyard.

1.B. Phase 1 Science Building

The most significant and immediate new project proposed in The Plan is the Phase 1 Science Building, a project also recommended in the 1995 Master Plan. The building will occupy a portion of the site where Roosevelt Hall/ Roosevelt Extension now stands. Currently in the planning stages, the building will focus on providing facilities for undergraduate entry level natural sciences. It is anticipated to be approximately 180,000 gsf.

1.C. Renovation of Ingersoll Hall/ Ingersoll Extension

The renovation of Ingersoll Hall/ Ingersoll Extension is long overdue. As part of The Plan overall, the Ingersoll complex housing the School of Natural and Behavioral Sciences, will be renovated, providing new research and laboratory spaces necessary to meet the pedagogical needs of the sciences. In addition, Psychology will be relocated from William James Hall, both enhancing its proximity to other programs in the School of Natural and Behavioral Sciences as well as vacating space, allowing the School of Education to expand in William James Hall. The Phase 1 Science Building and the renovation of Ingersoll Hall/Ingersoll

Extension together will meet the anticipated long-term needs of the School of Natural and Behavioral Sciences.

2. New School of Business

Another significant new construction project outlined in The Plan is a new School of Business, proposed as part of a possible mixed-use building on the Nostrand Avenue site. Current zoning allows for between 325,000 – 425,000 gsf, which could include the estimated 134,000 gsf of educational facilities needed for the School of Business, as well as the relocation of additional College-related activities such as the bookstore, cafeteria, Business Development Center, and the Offices of Advancement and Alumni Affairs. These relocations will vacate needed space in Boylan and Ingersoll Halls. In addition, the site could provide student housing, offices and retail development. When the School of Business is completed, the Department of Economics will be relocated to the new building, vacating space in Whitehead Hall for expansion of the arts.

3. William James Hall Renovation

William James Hall will be renovated, becoming the home of the School of Education as well as providing needed space for Student Services, complementing those services provided in the West Quad Building. As part of the renovation, all new energy-efficient building systems will be installed, as will a new automatic wet sprinkler system. As part of a DASNY project, the façade of William James Hall is currently being upgraded and the main entries to the West Quadrangle re-opened.

4.A. Phase 2 Academic Building

Because of the size of the School of Humanities and Social Sciences, with a projected need close to 85,000 nasf exclusive of classrooms, The Master Plan Team found it was unrealistic to accommodate the School entirely in Boylan Hall, because doing so would require relocating Administrative Services as well as Visual Arts to other buildings on campus. Therefore, The Plan recommends that Humanities remain and expand in Boylan Hall, while Social Sciences relocate and expand in a new academic building planned adjacent to the Phase 1 Science Building. From a logistical stand-point, the new academic building would be constructed first, allowing Social Sciences to be relocated, thereby vacating space in Boylan Hall, allowing Humanities to expand. The Plan recommends the new Phase 2 Academic Building be 150,000 gsf.

4.B. Boylan Hall Renovation

Boylan Hall will be renovated to provide enhanced instructional and office space for Humanities, as well as improved Administrative Services and support space. Its public areas, corridors, and restrooms will also be brought up to contemporary standards. In particular, The Plan also proposes the introduction of more social space in the building, including a café off the entry to the building that will open to the cafeteria down below.

5.A. Whitehead Hall Expansion

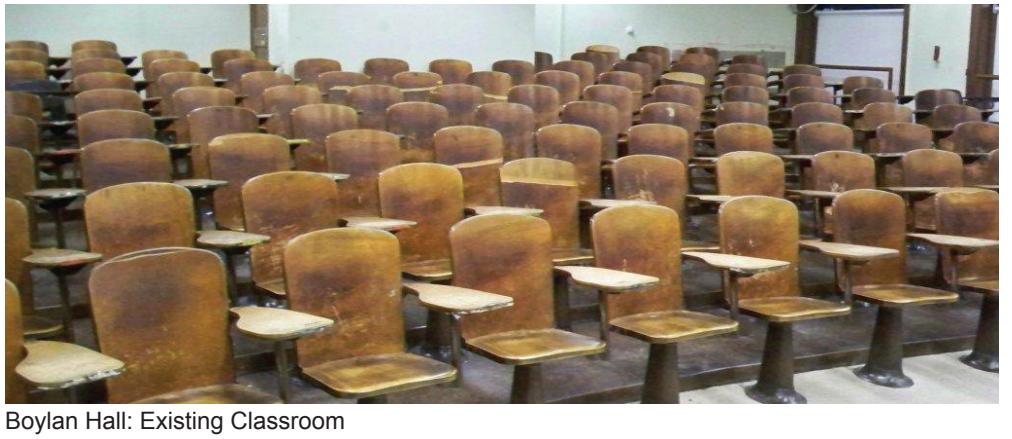
Similar to the 1995 Master Plan, The Plan proposes the expansion of Whitehead Hall along Campus Road. This would provide approximately 35,000 – 40,000 gsf of new space, the majority of which would house expanding needs for the School of Visual, Media and Performing Arts. Its location along the perimeter of the campus and within close proximity of one of the College's main entries at Hillel Gate off Campus Road make it an ideal location for the School's proposed art gallery and exhibition space.

5.B. Whitehead Hall Renovation

Either concurrent with or following the expansion of Whitehead Hall, would be the overall renovation of the building, incorporating new uses and activities in the vacated spaces of the History and Economics Departments. While Whitehead Hall received a facility-wide upgrade in the late 1980's, its outdoor air and fan-coil unit systems are nearing the end of their useful life and should be fully replaced as the building is reconfigured to accommodate expanding spaces for Music, Theater, and Visual Arts.

5.C. Whitman Hall Renovation

The basement level of Whitman Hall -- frequently referred to as "The Knuckle" which connects Whitman Hall to the new Leonard and Claire Tow Center for the Performing Arts -- is in need of significant repair and upgrade. These



Boylan Hall: Existing Classroom

spaces will continue to serve the Theatre program even after the new Center is opened. Therefore, improvement to these spaces is critical.

Existing and Proposed Floor Area

Existing Campus Floor Area	**NASF**
Occupied/Assignable Space	1,252,242
Inactive Space Outside of Roosevelt (est.)	36,000
Inactive in Roosevelt Complex	87,347
Total	**1,375,589 nasf**
Less NASF to be Demolished	210,000
Total Adjusted Existing Campus Floor Area	*1,165,589 nasf*

Proposed Additional Floor Area	**NASF**
Campus Services - Ingersoll East Courtyard Infill	5,170
Phase 1 Science Building	90,000
School of Business/Mixed-Use at Nostrand Ave. Site	66,850*
Phase 2 Academic Building	75,000
Whitehead Hall Extension	23,670
Campus Services Expansion	23,400
Total: Additional	**284,090 nasf**
Increase	24%
Total Proposed Campus Floor Area	*1,449,679 nasf*

* School of Business only, exclusive of Classrooms

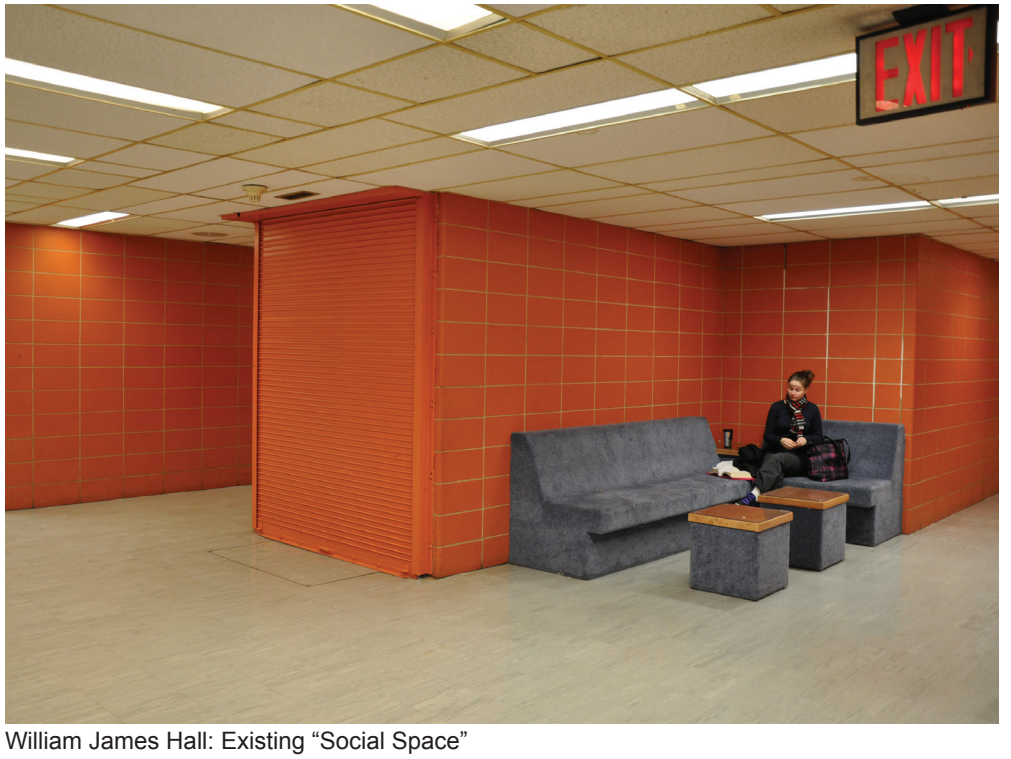
Whitman Hall: Lower Level Instructional Space

Low Cost High Impact Improvements

In addition to the proposed long-term capital improvement projects, there is an immediate need for new furniture, fixtures and equipment necessary to create appropriate teaching, learning and social spaces. While the College has made strides in providing “smart classrooms” in recent years, many of the instructional spaces remain much as they did when they were originally constructed.

Similarly, new furniture, paint and appropriate ambient lighting will make existing social spaces much more welcoming. These types of improvements are currently underway in certain buildings and should continue to the extent possible, as they are relatively low cost with high impact.

Boylan Hall: Existing “Social Space”



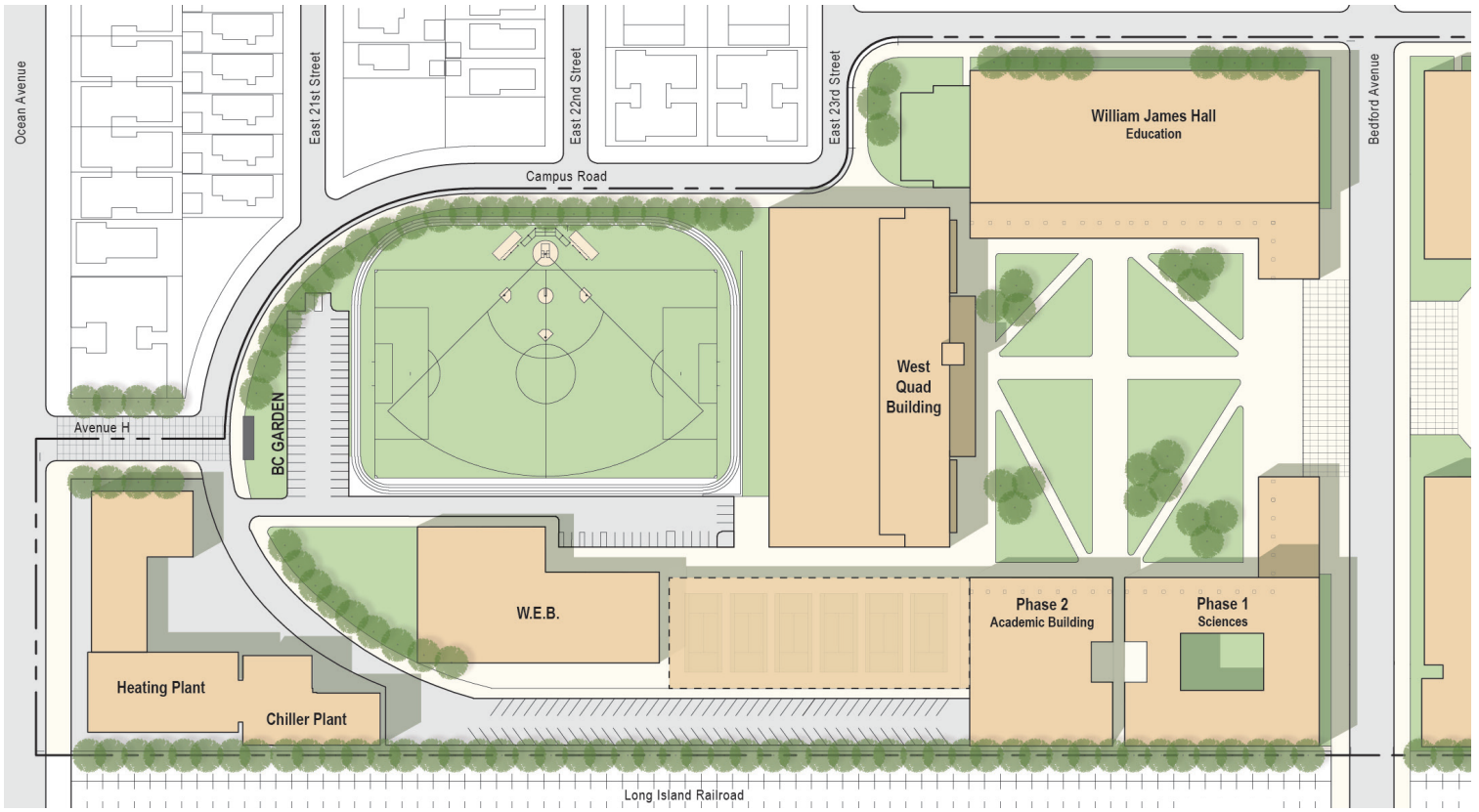
William James Hall: Existing “Social Space”

J. Landscape Improvements

One of the defining features of Brooklyn College is its lush and manicured landscape. The green lawns, flowering bushes, and large canopy trees are treasured by students and faculty alike. When asked what they appreciated most about the campus, over 50% of the students, 70% of the faculty, and more than 80% of the staff responded "the beauty of the landscape." As improvements continue at the College, it is important that attention be paid to this aspect of the campus, and that funds are allocated not only for building improvements but also for landscape enhancements, particularly in the area of the West Quadrangle. The Plan recommends planting, new porous pathways, hardscape areas with special paving materials, energy-efficient pedestrian lighting, bicycle racks, signage, additional benches and seating areas, and an improved landscape entry to the College from Avenue H. In addition, given the quality of the College's Visual Arts program, The Plan recommends that sculpture and two-dimensional artwork be located throughout the open space of the College. A map locating the art and describing the artist will make the entire campus a sculpture garden.

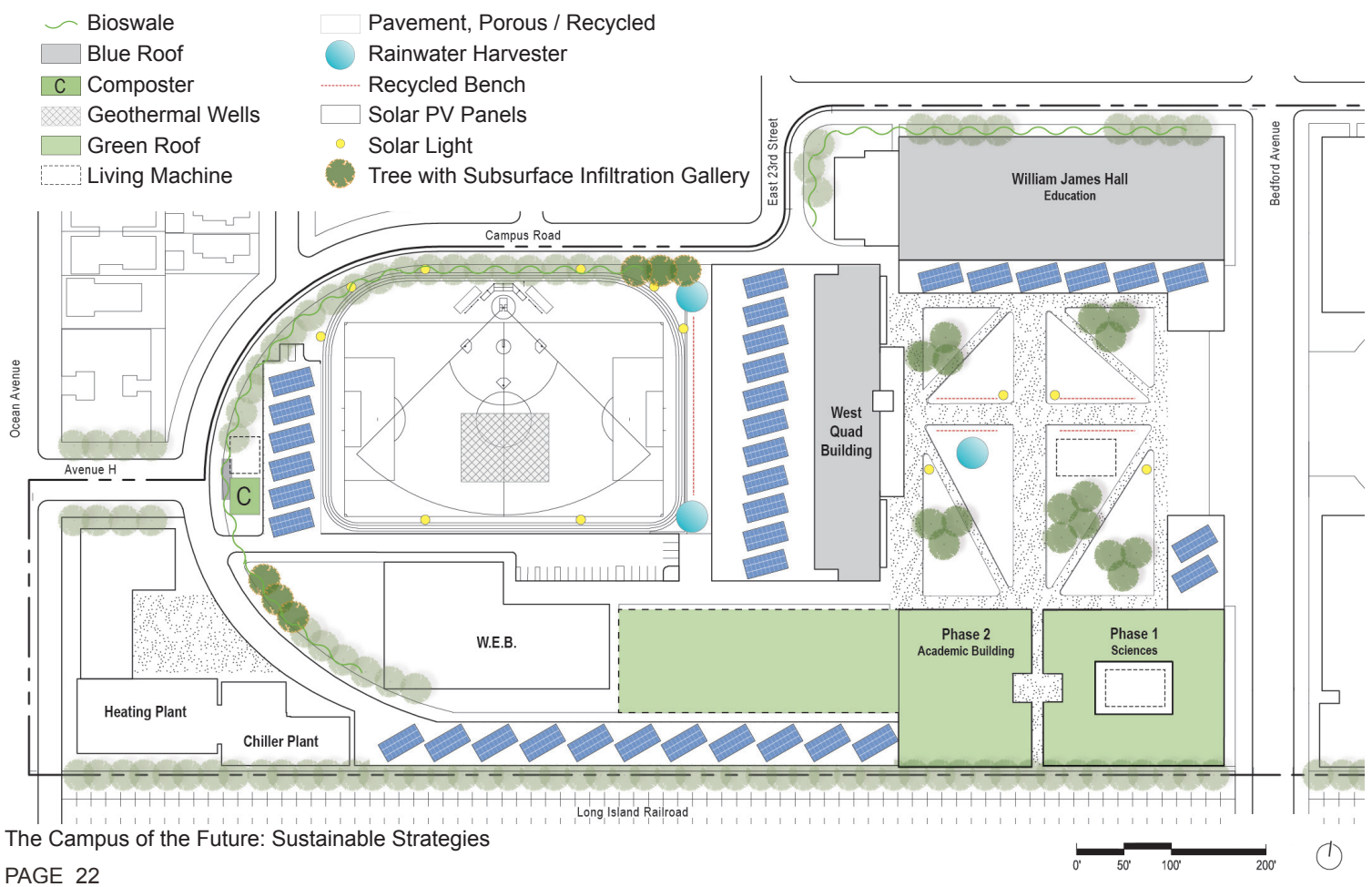
K. Campus-wide Sustainability Initiatives

In keeping with the CUNY-wide Sustainability Project, the College convened the 'Brooklyn College Sustainability Council' and the 'Provost's Task Force on City-Based and Sustainability Education' to evaluate sustainability on campus and make recommendations for improvements in the 'pillar' areas of: (i) waste reduction and recycling; (ii) energy; (iii) water; (iv) procurement; (v) transportation; (vi) education and outreach; and (vii) food and nutrition. In May 2010, the College issued a report titled the "10 Year Sustainability Plan" representing a major campus-wide sustainability initiative. Its mission is "to create an overarching culture of sustainability throughout the entire campus community by raising awareness of, engaging in, and commitment to reducing the 'carbon footprint' through campus-based education, research, operations, community-based collaboration and service." The report represents the results of almost two years of work on the part of the College and these committees, demonstrating a collective commitment to sustainability. It provides a detailed action plan for both behavioral change as well as building and equipment upgrades. An additional assessment conducted by O'Brien and Gere produced the "Campus Energy Assessment" report dated November 2010, which was included as part of the team's overall building evaluations.



The Campus of the Future: West Quadrangle with New and Expanded Academic Buildings

In support of these efforts, The Plan recommends a number of initiatives, including: incorporating “blue” roofs on existing buildings with “green” roofs provided on new structures, installing “living machines” for treating grey water, and creating geothermal wells to provide cooling for new buildings. Solar lighting and photovoltaic (PV) panels that harness solar energy are also recommended, as are shade structures to diminish heat build-up on surface parking lots, expanding tree pits with subsurface infiltration galleries for storm water quantity management, creating bioswales to catch road runoff, slow-flow velocity to remove pollutants, a composter to compost certain food and yard waste into fertilizer to be used on campus grounds, and rainwater harvesters to irrigate the athletic fields and West Quadrangle lawn. The Plan recommendations, the 10 year Sustainability Plan, and the “Campus Energy Assessment” should be used in conjunction with one another to influence the College’s decisions regarding future capital improvements.



The Campus of the Future: Sustainable Strategies

L. Infrastructure

Campus services for electric, domestic water, storm drainage, and sanitary drainage are adequately-sized to serve existing buildings on campus; however, a range of improvements and upgrades are recommended to support the College’s projected growth. Also, these improvements will allow the College to achieve greater operational efficiencies, while implementing several of the approved sustainability strategies. Additionally, specific heating and cooling, electrical, fire protection and domestic water upgrades that utilize backflow preventers are recommended for most buildings undergoing renovations. Exterior improvements to most buildings are recommended, and include such things as routine maintenance to control plant growth and mortar upgrades to avoid deterioration of masonry, slate roofs, and roof decks. Finally, as buildings are renovated, The Plan recommends new insulation be installed between exterior façades and interior walls to improve the thermal envelope and thereby reduce heating and cooling loss.

M. Costs for Implementation

The Plan is supported by an estimate of the construction costs associated with each improvement. The projects are categorized as renovation, new construction, building additions, site work, and overall landscape improvements. Due to the nature of the concepts and the timeline of The Plan, it is difficult at this time to provide precise costs for each project outlined. Furthermore, the estimates include a 15% design contingency to account for improvements not yet envisioned.

Snow-covered East Quadrangle with LaGuardia Library and Ingersoll Hall

II. OVERVIEW

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A. Introduction

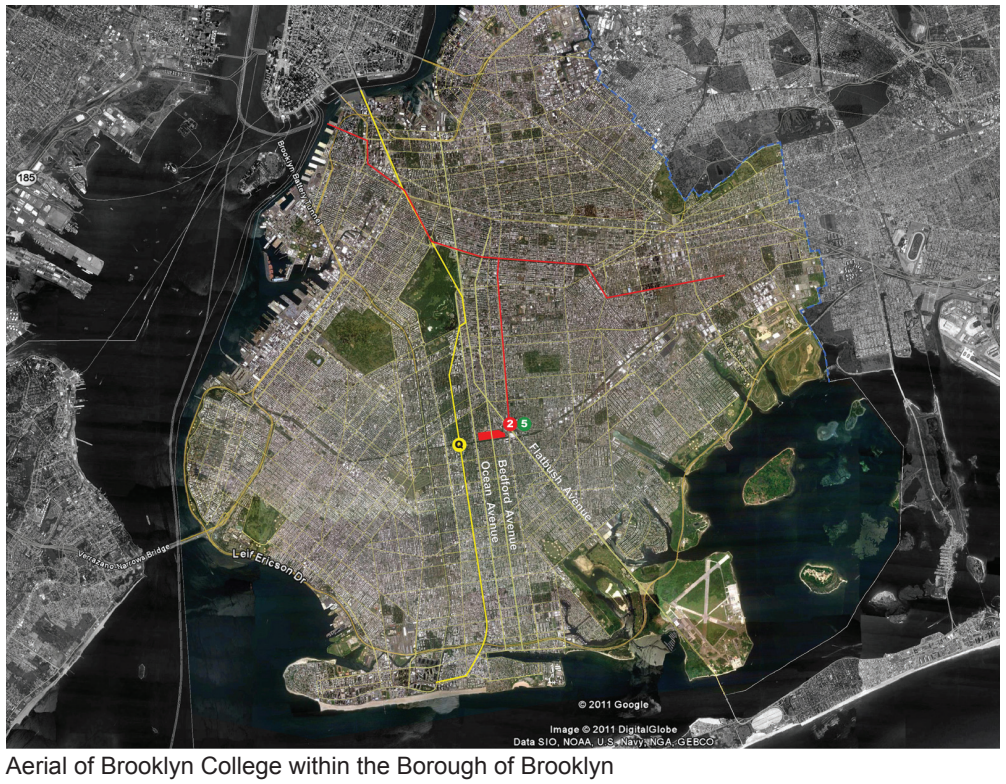
To achieve the College's goals of maintaining its high standards of academic excellence, commitment to teaching and research, and a student-focused environment, it is important to understand the College's history, its geographic and demographic context and existing physical conditions. It's equally important to understand the College's aspirations for the future -- where it wants to be academically and physically in the next ten to fifteen years, and any real and/or perceived roadblocks that might hinder its ability to achieve success. To accomplish this, The Master Plan Team reviewed available background information including the 1995 Master Plan; conducted interviews; held open Town Forums; studied enrollment projections to understand the College's growth objectives; evaluated existing buildings, parking and infrastructure; analyzed current utilization of space; visited the campus numerous times day and evening to see how the students, faculty, and staff use the campus on a daily basis; and met regularly with the Working and Steering Committees to obtain input.

B. Site Context

Located in the middle of the Borough of Brooklyn, the College is surrounded by a mix of neighborhoods ranging from large single family homes of historic interest in the Midwood district to the west, to multi-family mid-rise residential to the north, to the dynamic and vibrant mixed-use retail and multi-family residential development along Nostrand and Flatbush Avenues to the east. Bordering the campus to the south are the Long Island Railroad tracks, buffered by large shade trees. The campus's main entrance is at its eastern edge, at the terminus of Hillel Place on Campus Avenue, nearest the Borough's highly visible and most populated commercial streets. At the south-eastern corner of the site is the College's newly-acquired Nostrand Avenue Site adjacent to parking lot #1.

C. Site Access

Accessibility is a great advantage to the College, sitting as it does between several public transportation lines serving Brooklyn and Manhattan as well as the Bronx and Queens. From the east, the MTA #2 (7th Avenue local) and #5 (Lexington Avenue Express) train lines terminate at the Flatbush Avenue stop, a short two-block walk from the campus's main entry at Hillel Gate. From the west, the MTA Q local train line has a stop at Avenue H, five blocks away from the campus. Although this entry is considered to be a "back entrance" to the College, functioning primarily as a service entry with little signage, landscaping or pedestrian amenities, it is used frequently by students, faculty and staff, and will likely be used more when the MTA finishes renovating the Q line at the Avenue H stop. The Department of Transportation (DOT) "green spaces"



Aerial of Brooklyn College within the Borough of Brooklyn

Aerial of Brooklyn College and the Surrounding Neighborhood

initiative along Avenue H includes a bike path that also encourages use by cyclists to access the campus from the west. A series of MTA bus routes surrounding the College also bring students, staff, and faculty to campus.

As well served as the campus is by mass transit, a significant percentage of Brooklyn College students arrive by car. With limited affordable parking opportunities either on campus and/or in the immediate neighborhood, the ability for the College to attract commuter students is hindered.

D. The 1995 Master Plan

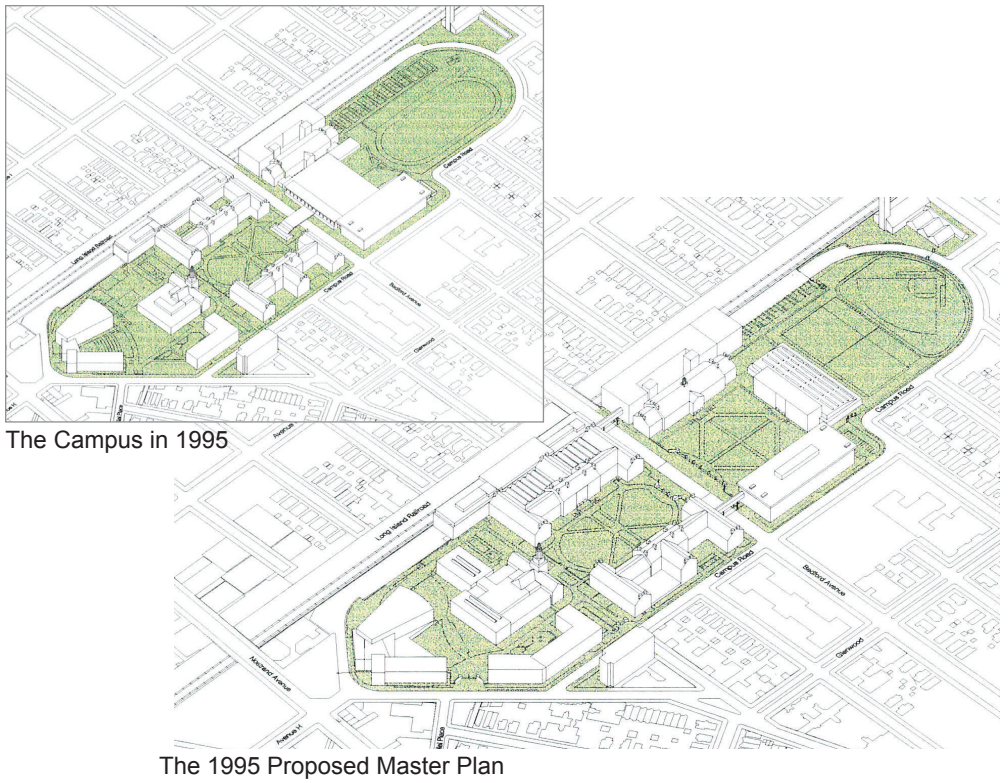
In 1995 a Master Plan was developed by Gruzen Samton / Kliment and Halsband Associate Planners and Architects. It identified opportunities for new construction, connecting pedestrian overpasses, interior renovations and program reorganization, landscape and accessibility improvements, and building system upgrades.

Several major projects have been accomplished since the 1995 Master Plan, including the LaGuardia Library rehabilitation and expansion in 1998, construction of the Chiller Plant in 2000, demolition of the Bedford Avenue overpass in 2003, and the demolition of Plaza Building in 2005, making room for the new West Quad Building and landscape quadrangle. Furthermore, ramps for accessibility to Boylan Hall, Ingersoll Hall and LaGuardia Library were installed. Planning for the new Phase 1 Science Building is underway and in late May of 2011, the College celebrated ground-breaking for the new Leonard and Claire Tow Center for the Performing Arts.

Recommendations that have yet to be realized are the construction of Whitehead Hall Extension to house the arts, the sculpting and landscaping of the West Quadrangle with formal steps and ramps to ease accessibility to buildings, and the addition of groves of trees to create shaded areas for gathering. While the Bedford Avenue sidewalks have been widened, pavement treatment within the roadway delineating a crosswalk for safety and movement of pedestrians has not been realized, due to DOT regulations.

E. The Campus Today

The 37.6 acre campus today includes the original buildings constructed in the late 1930's (Boylan Hall, Ingersoll Hall, Roosevelt Hall and LaGuardia Library) as well as structures added in a series of construction periods spanning from 1954-63, to 1968-73, and 2009-2011. Today, the campus consists of seven academic buildings, a "temporary building" known as the West End Building (WEB), LaGuardia Library, the West Quad Building providing athletic, recreation and student services, and the Central Plant. The College's



The Campus in 1995

The 1995 Proposed Master Plan

Hillel Gate: Brooklyn College's Main Campus Entry

Studend Union Building (SUBO), is located across Campus Road outside of the gates/fences of the campus proper. While serving the College and its students, SUBO is not owned by the College or CUNY but rather by a student organization entity established in the late 1960's. Roosevelt Hall/Roosevelt Extension and Gershwin Hall are slated for demolition in the near future.

Projects currently underway include the restoration of the southern façade of William James Hall, the re-organization of the athletic fields to incorporate a half-mile track and softball field, and a campus-wide effort to replace single pane windows with double pane glass in the older buildings for energy efficiency.

The hallmark of the campus however, is not so much its buildings as it is its lush, well manicured and maintained landscape. The mature shade trees, flowering shrubs, expanses of lawn, quiet seating areas and the remarkable Lily Pond make Brooklyn College a special place, not only within the neighborhood but also among the CUNY campuses.

1. Formal Organization

Modeled after Thomas Jefferson's plan for the University of Virginia, the campus has a strong formal organization, reflecting classic collegiate environments of the late 1800's and early 1900's, where large rectangular quadrangles served as the organizing elements for buildings. The East Quadrangle, measuring approximately (430 feet x 250 feet) is framed by the campus's original Georgian inspired buildings -- Boylan Hall to the north and Ingersoll Hall to the south. LaGuardia Library sits at the quadrangle's eastern edge, on axis with the open space, serving as its visual terminus. Symmetrical pathways line the open space as well as cross through it in a classic "X" pattern with pathways connecting Boylan and Ingersoll Halls.

A clear division on campus occurs between the East and West Quadrangles as they are bisected by Bedford Avenue. The West Quadrangle follows much the same organizational structure as the East Quadrangle, with Roosevelt Hall and William James Hall framing its north and south edges, and with the new West Quad Building serving as its western terminus in much the same way as LaGuardia Library terminates the East Quadrangle. As the campus continues to develop, redevelop and expand, it's important that this strong organizational framework be maintained.

Holocaust Sculpture

The Lily Pond

2. Entries

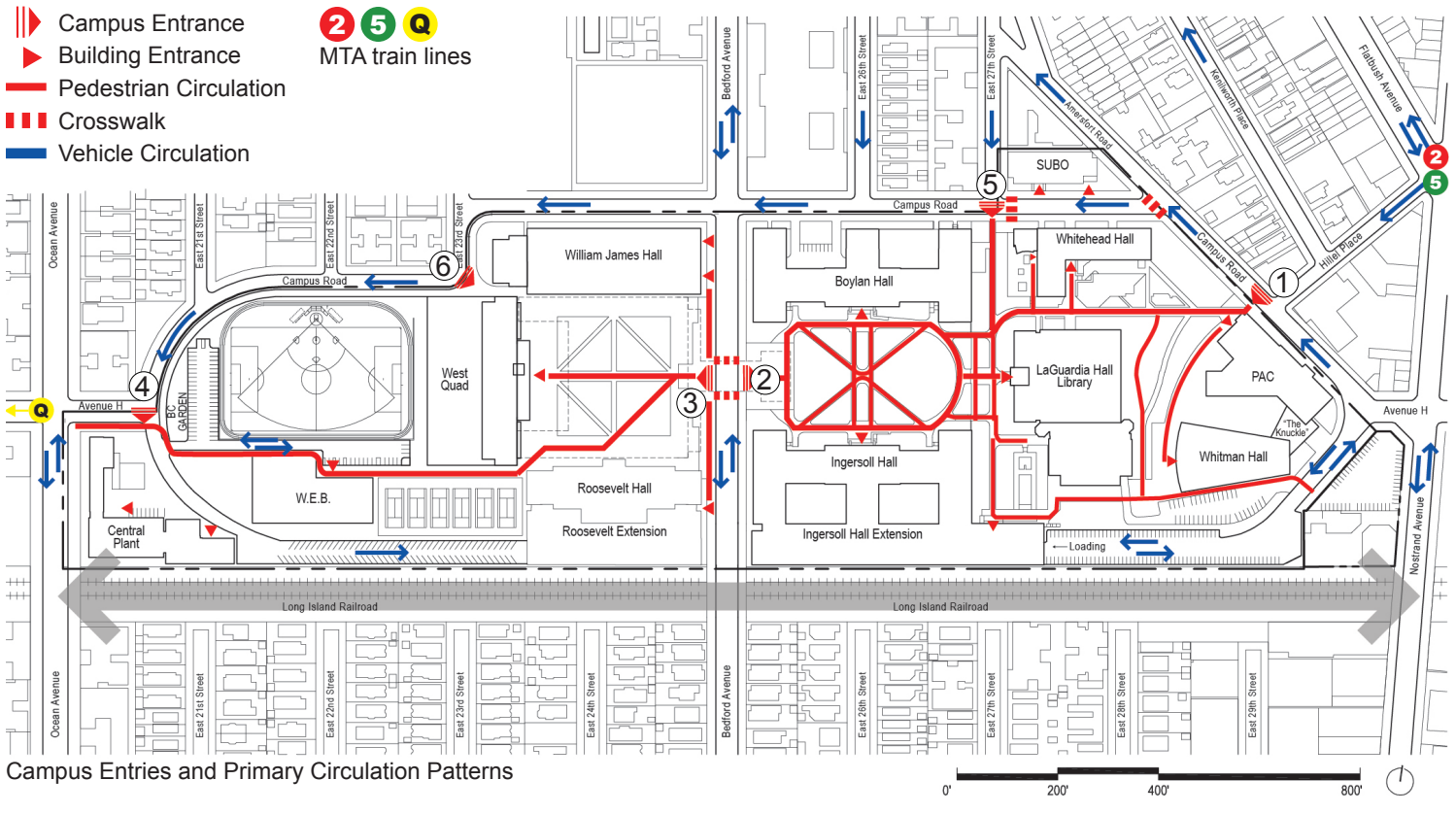
The campus has a total of six gated pedestrian entrances. The primary is Hillel Gate (1) at the eastern edge of campus closest to the MTA #2 and #5 train lines. There are two secured entrances at Bedford Avenue (2 and 3), one accessing the East Quadrangle, the other accessing the West Quadrangle. The western entry at Avenue H (4), although considered a back entrance, is used heavily by pedestrians arriving from the MTA Q train line. The entrance on Campus Road at East 27th Street (5) spans between Boylan Hall and Whitehead Hall and is also highly utilized by students, as it is closest to the Student Union Building north of Campus Road, and the Library Café sitting west of Whitehead Hall. The gate on Campus Road at East 23rd Street (6) was intended to provide community access to the athletic fields, yet it is used more for deliveries than by pedestrians. Similarly, there is an informal pedestrian access through the back of Whitman/Gershwin Halls in the area of the loading dock, used primarily by faculty parking in lot #2.

Security booths are located at the Hillel Gate entry (1), the Bedford Avenue entries (2 and 3), and the Avenue H entry (4). Security guards sitting at desks secure the Campus Road entry (5) as well as access to SUBO. The campus is open from 7 am to 11 pm Monday through Friday, and 7 am to 6 pm Saturday and Sunday. The College is closed on public holidays and has shortened hours during recess and holiday periods.

3. Architectural Character

The architectural character of the campus varies in style and scale reflecting the evolution of the College over its eighty plus year history, with four distinct periods of construction in evidence today. The original five structures built in the 1930's include Boylan, Ingersoll, LaGuardia, and Roosevelt Halls along with the Heating Plant. They were constructed in the Georgian style modeled after the University of Virginia campus at Charlottesville. They are symmetrical in nature with simple rectangular brick volumes, sloped roofs and tall rectangular windows framed in white. Boylan and Ingersoll Halls were designed as mirror images of each other to frame the East Quadrangle with LaGuardia Library sitting iconically to the east. LaGuardia Library's symbolic prominence on the campus is noted by its tall, striking bell tower that can be seen at a distance from surrounding streets and neighborhoods. For years, this stood as the image for Brooklyn College.

With the exception of the LaGuardia Library's Bell Tower, the stack of the Heating Plant and Gershwin's fly tower, the heights of buildings do not exceed 80 feet, providing a rather uniform "frame" to the landscape quadrangles.



Campus Entries and Primary Circulation Patterns

Mechanical spaces as well as occupied spaces on the 5th and 6th floors of Boylan and Ingersoll Halls are tucked in to attic spaces of the roofs in order to maintain the buildings' classical proportions. Their façades are red brick running in a Flemish bond pattern with white trimmed rectangular windows to define each room and floor. Their roofs are pitched grey slate tile, with dormer windows, brick chimneys, mechanical stacks, and cupolas extruding from the roof plane. Building entries have large openings and are located on raised plinths of wide stairs to emphasize a symbolic passage into the halls of academia.

The second wave of construction spanned from 1954 through 1963 and included LaGuardia Extension, Whitehead Hall, Whitman Hall and Gershwin Hall. The architectural style of these buildings borrowed somewhat from their Georgian predecessors yet were distinct in many ways, reflecting the era in which they were built. Particularly out of context is Whitehead Hall with its blue green glass, a clear reference to the 1950's and early 1960's. Gershwin and Whitman Halls are somewhat more restrained and in keeping with the campus's original architecture. They are simple brick volumes with white framed windows, conveying little of the activity that is housed inside.

In addition, Whitman Hall has elements of the art deco era, both on its exterior façade as well as its interior lobby. The varying wall heights of the buildings constructed during this period, their general massing and their scale relationships to exterior spaces reflect none of the classicism of their earlier counterparts. In particular, the placement of Gershwin and Whitman Halls "behind" LaGuardia Library, disconnected in many ways from the core of the campus and its triangularly shaped, paved amphitheater, emphasizes its lack of adherence to the original plan.

The third and modern wave that saw the construction of five buildings spans from 1968 through 1973, and includes the extensions of Ingersoll and Roosevelt Halls, William James Hall, SUBO, and the Plaza Building (since demolished). These buildings break the classic relationship between the East and West Quadrangles with their scale, large windowless spans, and lack of relationship to the campus and surrounding neighborhood, creating less than welcoming edges and entries. The height of the buildings range from William James Hall -- slightly over 80 feet, to SUBO -- in excess of 100 feet tall. Without the historic step-back of their roof lines, their scale becomes even more overwhelming. Lastly, the introduction of new colors and materials such as metal panels to this group of buildings, further disrupts the character of this campus architecture.

The fourth wave of construction on campus consists of the "temporary" two-story pre-engineered West End Building (WEB) in 1999 and the Chiller Plant in 2000. With its exterior brick façade and scale, the architecture of the Chiller Plant mimics that of the adjacent Heating Plant.

Juxtaposition of Georgian Style Roosevelt Hall (1937) and Modern West Quad Building (2009)

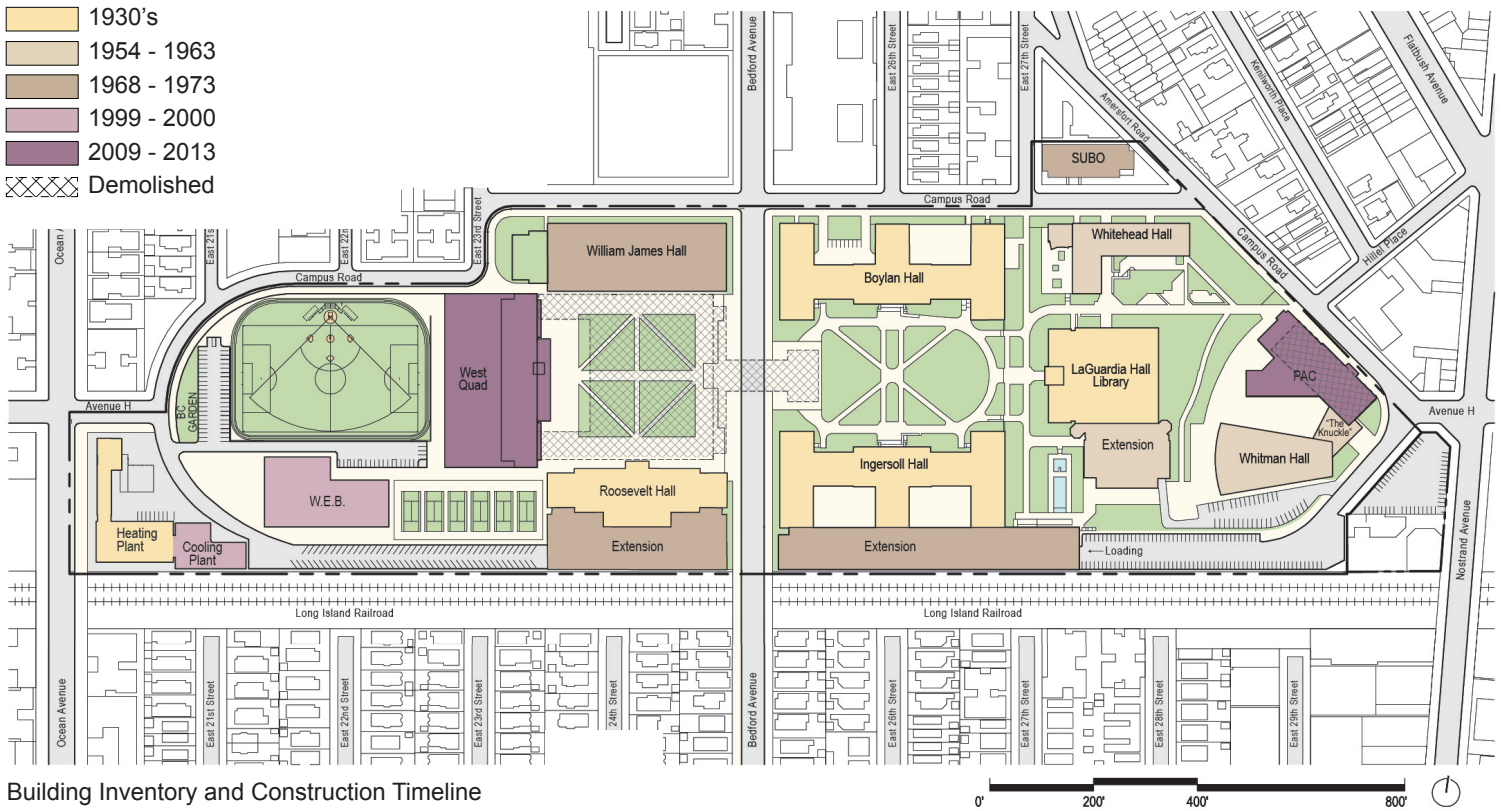
The Leonard and Claire Tow Center for the Performing Arts

The fifth and most recent period of construction on campus includes the West Quad Building in 2009 and the recent (May 2011) ground-breaking for the new Leonard and Claire Tow Center for the Performing Arts (PAC). The West Quad Building is a modern brick, steel and glass structure terminating the West Quadrangle -- on axis with LaGuardia Library. The building draws its inspiration in part from the 1930's architectural design of its neighbor Roosevelt Hall with its red brick façade and classical elements. True to contemporary architecture however, it lacks decorative motifs and uses large glazed surfaces to span rooms and floors, framing specific interior activities. Like its modern neighbor, its rigid rectangular height does not scale back at its roof line, instead maintaining the volume of adjacent William James Hall. On its west façade facing the athletic fields, large structural joists jut out of the building some 35 feet, indicative of shading devices.

The PAC, scheduled for opening in the spring/summer of 2014, is both contemporary yet contextual. The lobby of the new PAC forms the interface between the campus and the community with its transparent glass curtain wall and alternating metal and brick panels. Its architecture transmits the energy and vitality of the arts within, creating a welcoming edge to the College along Campus Road, adjacent to the main Hillel Gate entry. Respecting the architectural history of the campus and its predominance of masonry buildings, the new PAC features brick matching the color of the existing complex, but used in a contemporary manner. The interplay of the brick columns, interspersed with metal panels and curtain wall spaced rhythmically along the building's façade, hints at the sense of anticipation one experiences as the curtain rises for a performance. A 70 foot high stair tower and taller triangularly shaped sign lit from within announces Brooklyn College to the community at large.

4. Landscape Character

Brooklyn College has two distinct and somewhat separate landscape characters defined by Bedford Avenue. The area east of Bedford Avenue reflects the College's original character, rich with mature vegetation and plantings that enhance large and small landscape spaces alike. Entering the campus from the east at Hillel Gate, a pedestrian experiences a rolling lawn to the south of the main path, separating LaGuardia Library from Whitman Theater, where a Holocaust sculpture provides a small sense of the arts on campus. To the north of the main path, the pedestrian sees the Whitehead Deck, composed of two large spans of wood deck configured in tilted planes,



Building Inventory and Construction Timeline

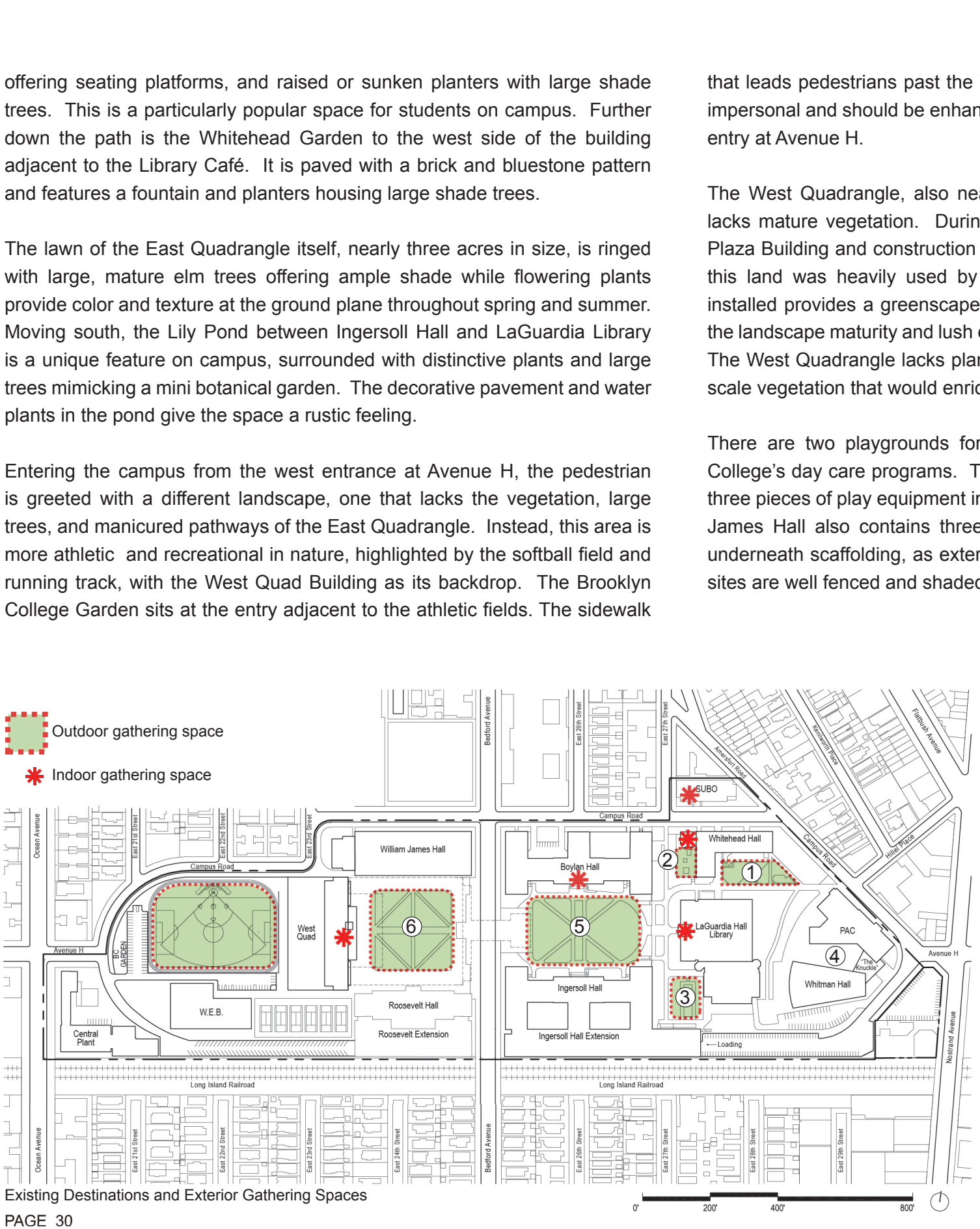
offering seating platforms, and raised or sunken planters with large shade trees. This is a particularly popular space for students on campus. Further down the path is the Whitehead Garden to the west side of the building adjacent to the Library Café. It is paved with a brick and bluestone pattern and features a fountain and planters housing large shade trees.

The lawn of the East Quadrangle itself, nearly three acres in size, is ringed with large, mature elm trees offering ample shade while flowering plants provide color and texture at the ground plane throughout spring and summer. Moving south, the Lily Pond between Ingersoll Hall and LaGuardia Library is a unique feature on campus, surrounded with distinctive plants and large trees mimicking a mini botanical garden. The decorative pavement and water plants in the pond give the space a rustic feeling.

Entering the campus from the west entrance at Avenue H, the pedestrian is greeted with a different landscape, one that lacks the vegetation, large trees, and manicured pathways of the East Quadrangle. Instead, this area is more athletic and recreational in nature, highlighted by the softball field and running track, with the West Quad Building as its backdrop. The Brooklyn College Garden sits at the entry adjacent to the athletic fields. The sidewalk that leads pedestrians past the WEB and West Quad Building is somewhat impersonal and should be enhanced with landscaping, as should the campus entry at Avenue H.

The West Quadrangle, also nearly three acres in size, is less formal and lacks mature vegetation. During the period between the demolition of the Plaza Building and construction of the West Quad Building from 2005-2009, this land was heavily used by construction vehicles. Although the lawn installed provides a greenscape, given its newness, it has not yet achieved the landscape maturity and lush character of its East Quadrangle counterpart. The West Quadrangle lacks plantings of large scale canopy trees and small scale vegetation that would enrich the pedestrian experience.

There are two playgrounds for children on campus that are part of the College's day care programs. The one adjacent to Whitehead Hall contains three pieces of play equipment in fair condition. The area adjacent to William James Hall also contains three pieces of equipment and temporarily sits underneath scaffolding, as exterior work is conducted on the building. Both sites are well fenced and shaded.



Existing Destinations and Exterior Gathering Spaces

Finally, there are two courtyards that form the space between Ingersoll Hall and Ingersoll Extension, both lacking in green space with minimal furnishings. These are rarely used.

5. Gathering Spaces

The campus provides several exterior spaces for gathering. These include the Whitehead Deck (1) offering a well defined space for meeting or gathering, popular as a rendezvous place due to its proximity to the campus's main entrance and its southern exposure. Equally popular is the Whitehead Garden (2) adjacent to the Library Café, and the Lily Pond (3) offering a unique and contemplative experience often referred

to as “the campus jewel.” It is a popular spot for photographs and special events, including neighborhood weddings. Never particularly successful was the paved amphitheater space between Whitman and Gershwin Halls (4) which will be replaced with a natural landscaped courtyard featuring native, sustainable, drought-tolerant plants, as well as a public art piece. The intent is to transform this under utilized space on campus into an “arts quadrangle,” giving arts students as well as College students at large a new place to gather informally.

The East Quadrangle (5) is the largest and most heavily used outdoor space on campus, due to its expansive lawn, large shade trees, and proximity to the main pedestrian path to the north. The steps to Boylan Hall and Ingersoll Hall also offer great “hangout spots” for many students. When weather permits, the East Quadrangle is the site for graduation ceremonies with LaGuardia Library and its Bell Tower as the backdrop.

Although the West Quadrangle (6) is another large expanse of lawn, it’s not used as often as the East Quadrangle, as it lacks shade trees and intimate places for seating. However, the small plaza with tables and chairs recently created just outside of the West End Building has become increasingly popular and should be promoted in the future as a student destination space.

Bicycle Racks Inside the Campus at Campus Road and 27th Street

6. Pedestrians and Cyclists

Brooklyn College is a commuter college with an extensive pedestrian network whose well-used pathways traverse the campus. The campus is also accessed by a growing number of cyclists on a daily basis. To support these cyclists and promote sustainability, the College has installed a number of bicycle racks, conveniently placed in two key locations near entries to the campus. Both of these are overseen by security personnel during the College’s hours of operation. One is located inside the gate on Campus Road at East 27th Street; the other is located near the Avenue H entrance close to the athletic fields. These racks are available to students, faculty, and staff members who present a valid Brooklyn College photo identification. Outside the campus gates are two locations for bicycle racks on Bedford Avenue; one is outside Ingersoll Hall and the other is at the entrance to the West Quadrangle on the widened sidewalk. Neither of these racks are manned by security personnel. Overnight storage of bicycles is not permitted.

7. Disconnects

For security reasons as well as to define the College as a physical entity, the campus is surrounded by either high brick masonry walls or a tall wrought iron fence with gated entries. SUBO, which is leased by the College, is located outside these perimeter walls, north of Campus Road near Whitehead Hall. Because of this, SUBO feels somewhat disconnected from the life of the campus. Its use for student activities, clubs and casual dining poses a challenge since it removes the “heart” of student social life from the campus proper. It also poses safety issues since students are known to J-walk across Campus Road, going to and from SUBO and the campus.

Similarly, the major dining facility on campus is located in the basement of Boylan Hall, with nothing but a small portable “Starbucks” sign announcing its presence on the campus quadrangle. Given that a great many students and staff use this facility on a regular basis, its location “hidden from view” deprives the campus of the type of vitality and energy this activity normally provides in a collegiate environment.

8. Signage

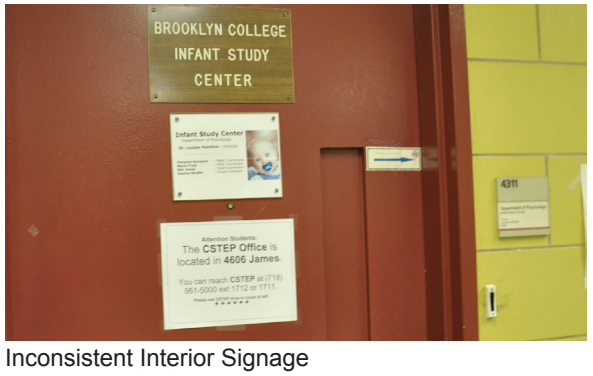
Existing graphics and signage on campus are rather minimal and inconsistent both outside and inside buildings. Occasionally a banner is placed on the exterior of buildings to announce an event. These temporary banners are a great way to instill excitement on the quadrangles; however, they are just temporary. The graphic of the SUBO banners announcing the Student Union

is completely disconnected from any graphics the College uses on its website or in print material. Furthermore, those signs are small and easily overlooked by pedestrians.

Within buildings, with the exception of LaGuardia Library, the interiors lack proper directional signage and graphic consistency. In some cases, hand-drawn signs have been placed noting the location of spaces or restroom facilities. This makes way-finding and overall accessibility challenging for students, particularly in the early days of their college experience. Recently, map directories have been located at each entry to the campus, a major step toward efficient way-finding; yet the lack of signs throughout the rest of the campus hinders users, specifically visitors, from efficiently finding the spaces they are seeking.

The triangularly-shaped, internally lit vertical sign that will be mounted on the stair tower of the new PAC will announce Brooklyn College to the community at large. Once inside the PAC, students and visitors will find a coherent and consistent set of signs directing them throughout the building. The graphics and overall styles of signs have been modeled in part on those found in LaGuardia Library in an attempt to reinforce consistency from one building to another. The campus should build on this and institute a campus-wide building signage program for existing and planned facilities.

Exterior Small Portable Sign at Boylan Hall



Inconsistent Interior Signage

Exterior Banners at SUBO

9. Service and Loading

The campus currently has two loading docks. The one located at Roosevelt Hall Extension is the largest with four bays, and receives most of the deliveries to campus. The second, located at Ingersoll Hall Extension, is smaller with only two bays, and receives deliveries specific to the needs located within the building. Trucks that deliver to this loading dock are smaller since the overhead clearance and turning radius is more modest than that at Roosevelt Hall. Other deliveries occur occasionally at the north side of Boylan Hall in the area known as the “well” and at the maintenance facility off Avenue H.

When Roosevelt Hall/Roosevelt Extension is demolished to make way for the new Phase 1 Science Building, the College’s primary loading dock as well as a significant amount of its storage will also be demolished. The Master Plan Team addressed this issue in *Appendix Volume 1: Short-Term Recommendations*, recommending that Campus Services, including loading, be relocated to the basement of Ingersoll Extension, given that this is the only other building on campus with a proper loading dock.

Located at the eastern-most side of campus, adjacent to the Heating Plant, are Campus Services’ trade shops where service vehicles are parked when not in use. Campus maintenance, operations, and emergency vehicles use the campus perimeter roads and paths, mixing occasionally with pedestrians, a common occurrence on most campuses.

10. Site Utilities

Brooklyn College taps into the New York City Department of Environmental Protection (DEP) water distribution system for potable water and fire safety. The campus is surrounded by a grid network with connectivity in all directions. At Campus Road north and south, a distribution ring varying in size from 12” to 20” serves each building on campus. As most buildings have multiple connections, there are additional building connections along Bedford Avenue that tie into the Campus Road water main.

The surrounding Brooklyn College neighborhood has a combined storm sewer overflow system typical of New York City. Similar to water distribution, most campus buildings have multiple connections to facilities in adjacent streets where capacities range from 12” to 54” lines. Brooklyn College, along with the entire neighborhood, then connects to a 180” trunk sewer that runs along East 27th Street and Avenue H towards the east.

Con Edison is the primary electrical service provider for the neighborhood surrounding Brooklyn College. The campus has no restrictions relative to connectivity as there are electrical duct banks running along Ocean Avenue, Campus Road north, Bedford Avenue, and Avenue H.

The majority of the College's buildings are served by the 6" gas main running along Bedford Avenue. The second point of connectivity is a 16" gas main running along Amersfort Place / Campus Road towards the northeast side of the campus. More research and information is required from Con Edison to confirm existing capacity as well as locating new connection points for future expansion of the campus.

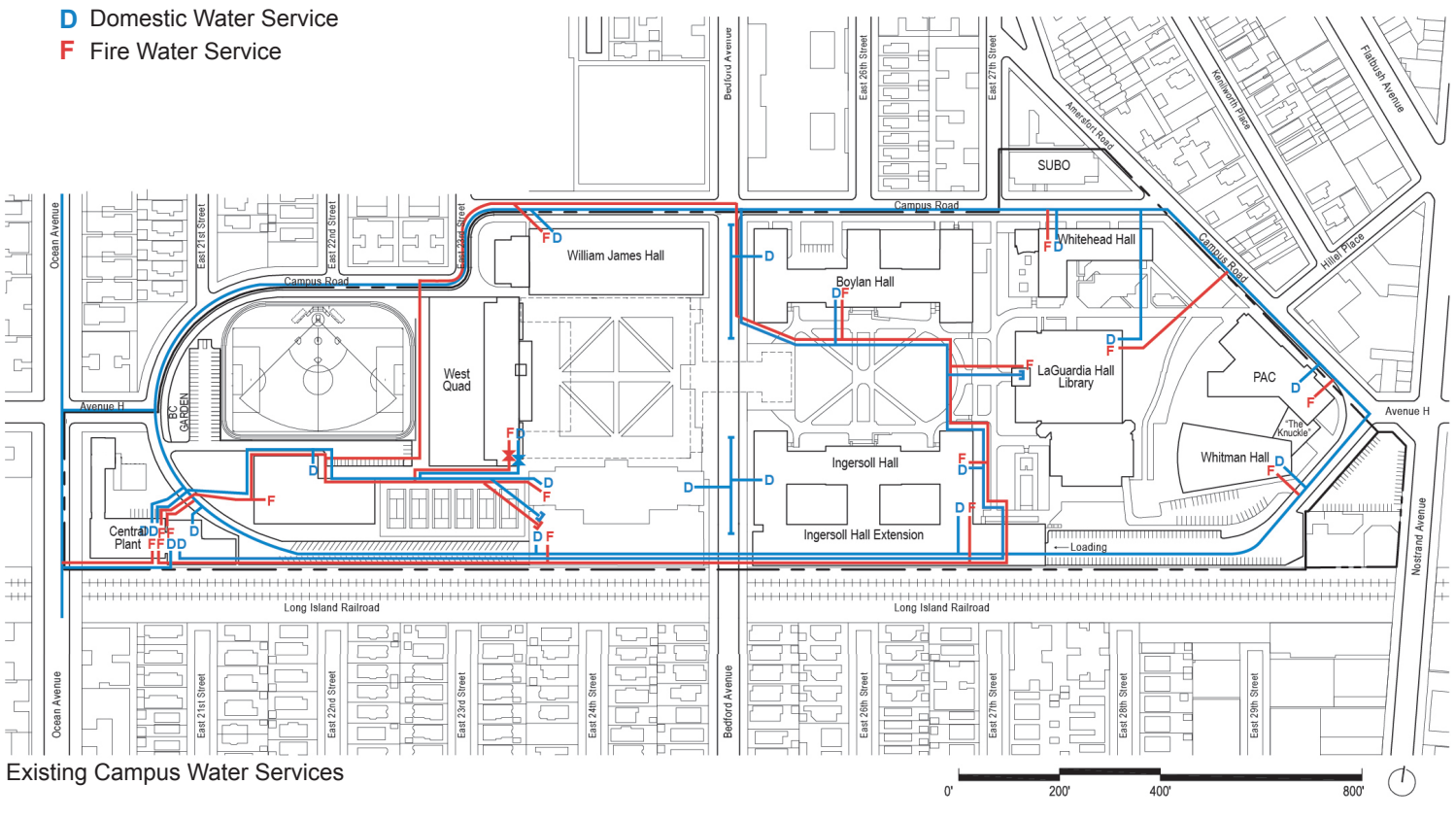
11. Infrastructure

Campus services for electrical, domestic water, storm drainage and sanitary drainage are generally adequately-sized to serve existing buildings on campus; however, a range of improvements and upgrades are recommended to support the College's projected growth. In addition to campus-wide upgrades, specific heating and cooling, electrical, fire protection and domestic water upgrades that incorporate backflow preventers are recommended for most buildings undergoing renovations. Finally, as buildings are renovated, The Plan recommends that new insulation be installed between exterior façades and interior walls, improving the thermal envelope and thereby reducing heat and cooling loss.

Boylan Hall, Ingersoll Hall/Ingersoll Extension, and the fifth floor of Whitehead Hall do not have central air conditioning, relying instead on individual window air conditioning units for cooling in the hot months. Most of Whitehead Hall and all of William James Hall have central air conditioning. The campus chilled water system serves air handling units that have been installed to serve isolated spaces such as cafeterias, lecture halls, the labs in Ingersoll Hall/ Ingersoll Extension, and the radio station in Whitehead Hall. The buildings have functioning perimeter heating systems served by the campus steam system; however, there is limited controllability and lack of efficiency. Spot improvements to the Heating, Ventilation, and Air-Conditioning (HVAC) systems have been conducted on an as-needed basis. The mechanical systems, perimeter heating, and air handling units are in fair to poor condition and in need of upgrade.

The building's existing electrical services have undergone several renovations to the distribution systems. The conditions of the main service rooms are typically crowded and some have low ceiling heights and panels with open wireway exposing the wiring and bus. The equipment itself is generally in fair condition, although it is obsolete in William James Hall. All equipment however is in need of upgrade. The existing fire alarm system was modified in 1995 as part of a campus-wide upgrade; however, the technology itself is outdated, and audible and visible devices are not to code.

The domestic water systems are adequately-sized and capable of serving each building, but the water services appear to be in fair to poor condition, as valves are rusted and insulation is missing. Furthermore, they are not equipped with backflow preventers as is currently required by New York City



Existing Campus Water Services

DEP regulations, and some meters are missing. The pressure is regulated by booster pumps that are also in poor condition. Whitehead Hall, however, does not have booster pumps at all. Cold water distribution piping is in satisfactory condition with minor maintenance required. Hot water heaters are in poor condition or are disconnected. Instantaneous hot water heaters that serve sinks and equipment in the kitchen in Boylan Hall have been recently installed and are in good condition.

The internal building storm drainage looks to be approaching maximum life expectancy in all buildings. The above-ground cast iron piping appears to be in fair condition, although the underground piping is original and should be further evaluated in the future, as renovation work is contemplated.

Detailed information regarding the conditions of building systems can be found in *Appendix Volume 2: Existing Space Profile* and *Appendix Volume 3: Building System Assessment*.

12. Building and Site Conditions

In general, the exterior envelope for most of the College buildings is in good to fair condition. Some of the issues that are present, however, include cracking and missing mortar, efflorescence and staining indicative of water penetration, significant plant growth which in some areas has caused spalling, and some rusting on the steel lintels at the Chiller and Heating Plants. Exterior improvements to most buildings are recommended and include such things as routine maintenance to control plant growth and mortar upgrades to avoid deterioration of masonry, slate roofs, and roof decks.

The roof condition of most buildings is in poor to fair condition, with some slate tiles missing in areas, and some cracked or missing mortar. Repairs are typically handled on an as-needed basis. The concrete waffle slab of William James Hall has had numerous patch repairs in the past and is currently undergoing additional repairs through an on-going capital project, although the roof system itself was replaced in its entirety in 2009. Windows throughout the campus are typically in good condition with the exception of Whitehead Hall, where they are in very poor condition and in need of replacement.

With the exception of a few areas in need of major repair, site conditions are typically good. The notable exceptions are the stairways, handrails, planters, and walkways at Ingersoll Hall Extension that are in fair to poor condition. The load bearing masonry arches supporting stairs at Ingersoll Hall are heavily efflorescent, and the window well walls at William James Hall appear to be collapsing. Some improvements are already underway for these areas.

13. Zoning Considerations

Brooklyn College occupies two District 6 Medium Density Residential (R6) Zoning Blocks per ZR map 23A. The block east of Bedford Avenue is Block 7556 Lot 150. The block west of Bedford Avenue is Block 7552 Lot 100. The uses permitted As-of-Right (ZR 22-10) are Group A (Mixed-Use Community Facility) (ZR 22-13). The permitted Floor Area Ratio (FAR) is 4.8 (ZR-24-11). The permitted lot coverage is 65% for an interior / through lot and 70% for a corner lot (ZR-24-11).

Bedford Avenue is an 80-foot-wide “wide street” and Campus Road a 60-foot-wide street, therefore different height and setback requirements apply. Along Bedford Avenue the minimum building setback is 15 feet; at Campus Road the minimum setback is 20 feet. For both Bedford Avenue and Campus Road, the maximum height (*h*) of the fronting walls is 60 feet (or six stories, whichever is less) from curbside. The sky exposure plane (*a* to *v*) at Bedford Avenue is 1-horizontal to 5.6-vertical, and at Campus Road is 1-Horizontal to 2.7-Vertical. Inner courts should not be less than 600 square feet, with a minimum dimension not less than 20 feet (ZR-24-64). Distances between any windows and walls should be a minimum of 20 feet at rear and side lot lines (ZR-24-65).

New York City Zoning requirements for parking are based on net assignable square feet of development, rather than the number of occupants in a building, the exception being places of assembly such as auditoriums. Therefore, the required parking for Brooklyn College is, with few exceptions, calculated at 1 space for every 2,000 nasf of building.

Today, the College has 491 parking spaces campus wide, versus the required count of 653 spaces. The College is currently operating under an agreement with the Department of Buildings (DOB) allowing it to function without providing the additional required 162 spaces.

14. Existing Building and Space Inventory

The campus today has 2,365,700 gsf distributed in fourteen buildings. The majority of this square footage, over 60%, is housed in three buildings that are the focus of academic activities on campus: Boylan Hall (321,800 gsf), Ingersoll Hall and Ingersoll Extension (602,200 gsf), and William James Hall

(287,200 gsf). The other primary academic building is Whitehead Hall (109,400 gsf).

Today, the campus provides 1,375,589 nasf. Approximately half of this space, just under 600,000 nasf, is allocated to academic departments/Schools and classrooms and is accommodated in eight buildings. Another 601,000 nasf is Support Space, including LaGuardia Library, Student Services, Administrative Services, Campus Services and Athletics. The remainder of the existing space on campus is Academic Related Functions and Hosted Entities. The adjacent matrix indicates the net assignable and gross square footage of each building, as well as its year of construction.

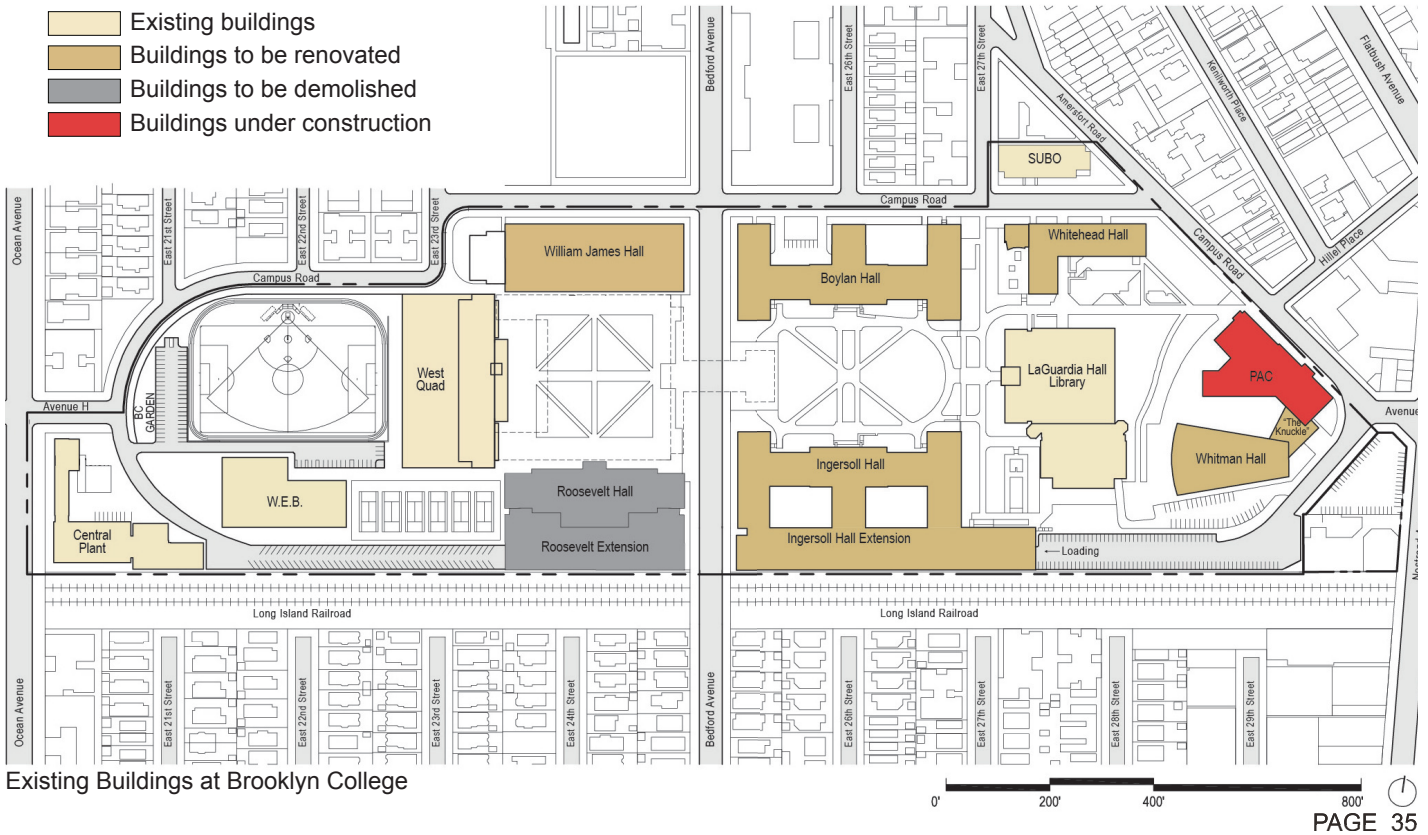
Boylan and Ingersoll Halls are the largest of the academic buildings on campus and are essentially mirrors of one other. The attic space on the fifth and sixth floors in Boylan Hall was renovated in 1990 to house art studios offering large clearstory and day lighting. William James Hall is the second largest of the academic buildings, followed by the West Quad Building, and Whitehead Hall.

Roosevelt Hall/Roosevelt Extension is slated for demolition within the next 2-3 years to make way
for the Phase 1 Science building, followed ultimately by the demolition of the WEB building at a date still to be determined.

Existing Building and Space Inventory

Building	Address	Constructed	Total NASF	Total GSF
Boylan Hall	2895 Bedford Avenue	1937	191,501	321,830
Chiller Plant	1325 Ocean Avenue	2000	6,891	20,890
Heating Plant	1325 Ocean Avenue	1937	8,037	25,812
Ingersoll Hall	2933 Bedford Avenue	1937	169,490	309,426
Ingersoll Hall Extension	2955 Bedford Avenue	1971	152,950	293,197
LaGuardia Library	2700 Campus Road	1937/1956/1998	196,350	291,594
The Leonard and Claire Tow Center for the Performing Arts*	2920 Campus Road	2014 est	21,909	66,183
Roosevelt Hall**	2946 Bedford Avenue	1937	75,366	135,037
Roosevelt Hall Extension**	2950 Bedford Avenue	1971	93,196	150,441
Student Union (SUBO)	2705 Campus Road	1962	44,292	81,738
West End Building (WEB)	2938 Bedford Avenue	1999	41,679	54,888
West Quad Building	2910 Bedford Avenue	2009	83,165	145,298
Whitehead Hall	2710 Campus Road	1963	65,915	109,417
Whitman Hall / “The Knuckle”	2920 Campus Road	1953	19,438	114,760
William James Hall	2900 Bedford Avenue	1972	154,336	287,213

** Under Construction*
*** To be Demolished*



Existing Buildings at Brooklyn College

15. Space Distribution

Over the past year, Brooklyn College has embarked upon a significant process of academic re-structuring, re-organizing departments and programs into Schools led by Deans. Until this time, it remained the only senior college within CUNY without Schools and a decanal leadership. As it moves forward, faculty, academic programs and departments will now be part of one of the following: (1) School of Business, (2) School of Education, (3) School of Humanities and Social Sciences, (4) School of Natural and Behavioral Sciences and (5) School of Visual, Media and Performing Arts. The new School structure will provide greater opportunities for interdepartmental and interdisciplinary support and collaboration with a decanal leadership that encourages creative cross-disciplinary undertakings.

The 1,375,589 nasf of existing space on campus has been grouped into the following broad categories: (1) Academic Schools and Classroom Space, (2) Academic Related Functions, (3) Hosted Entities and (4) Support Functions, with the first two categories representing 47% space on campus, and Support Functions, representing approximately 53% of the space. Hosted Entities consists of Brooklyn College Academy, which occupies 10,736 nasf on campus. As the College advances its academic restructuring to Schools, this balance will shift, so that by 2020 Academic Schools, Classrooms and Academic Related Functions are anticipated to represent 54% of the estimated 1,464,755 nasf space on campus; Support Functions will represent 46% and the Hosted Entities will remain constant. The table to the right reflects Brooklyn College's existing space distribution throughout the campus.

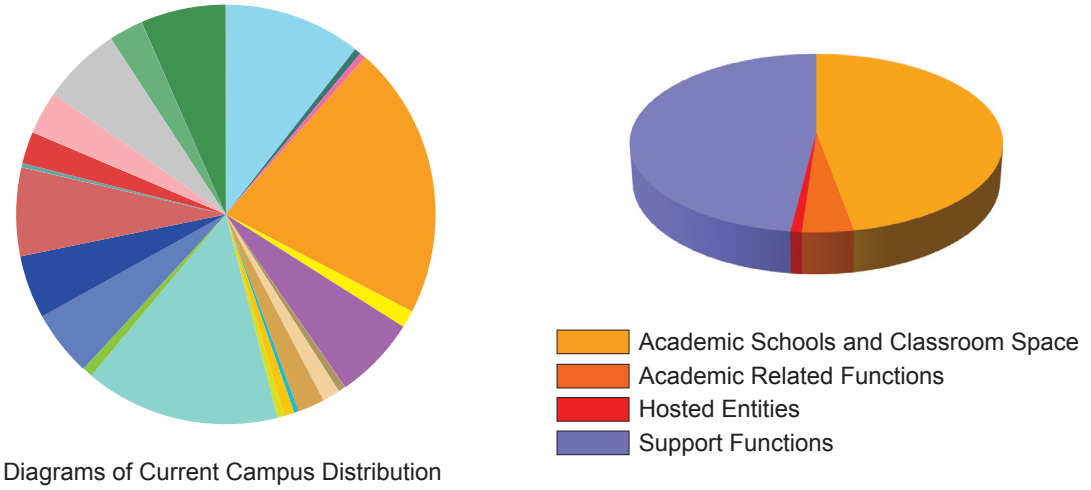
Overall, Brooklyn College delivers education in a space-efficient manner, particularly when benchmarked against the SUNY schools. Brooklyn College provides fewer net assignable square feet per full-time equivalent student hours (nasf/FTEs) than that of the twelve SUNY Colleges with which it was compared. Only non-residential space was included in the comparison. SUNY New Paltz is the only College that provides fewer nasf/FTEs than Brooklyn College. However, compared to eleven other CUNY colleges, Brooklyn College has more space than most, and is similar to Lehman College in its nasf/FTEs allocation, exceeded only by City College and CUNY Law.

The charts on the following page reflect the space utilization of the academic buildings in focus of The Plan: Boylan Hall, Ingersoll Hall, Ingersoll Hall Extension, Whitehead Hall and William James Hall. Currently, the Schools, Classrooms, Student Services, and Support functions are distributed throughout all the buildings on campus, lending to a very distributed model of space utilization.

Current Campus Distribution

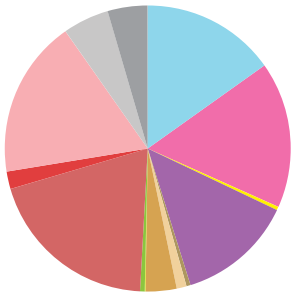
Space Type	Existing NASF	%
Classrooms and Computer Labs	140,413 sf	10.2%
School of Business	6,788 sf	0.5%
School of Humanities and Social Sciences	60,059 sf	4.4%
School of Natural and Behavioral Sciences	279,966 sf	20.3%
School of Education	17,746 sf	1.3%
School of Visual, Media and Performing Arts	84,980 sf	6.2%
Honors Programs	4,389 sf	0.3%
Continuing Education	18,114 sf	1.3%
Centers and Institutes	27,322 sf	2.0%
Learning Centers	4,725 sf	0.3%
Brooklyn College Academy	10,736 sf	0.8%
Grant Funded Programs	6,722 sf	0.5%
Library	199,736 sf	14.5%
Technology	10,454 sf	0.8%
Assembly and Exhibition	67,363 sf	4.9%
Athletics, Physical Education and Recreation*	65,346 sf	4.7%
Student and Faculty Activities	90,556 sf	6.6%
Child Care	4,294 sf	0.3%
Student Services	32,744 sf	2.4%
Administrative Services	44,197 sf	3.2%
Campus Services	80,317 sf	5.8%
Inactive Space Outside of Roosevelt (Estimate)	35,000 sf	2.5%
Inactive Roosevelt Complex (listed as Athletics)	87,347 sf	6.3%
Total	**1,379,314 sf**	**100.0%**

* Excludes Roosevelt

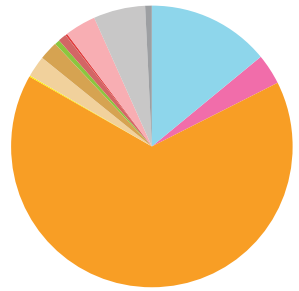


Diagrams of Current Campus Distribution

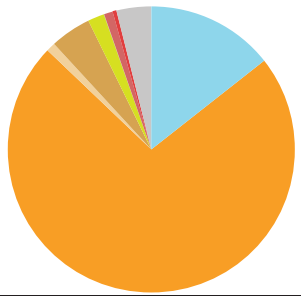
Diagrams of Current Building Distribution



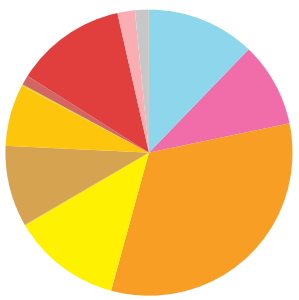
Boylan Hall	NASF	%
Classrooms/ Computer Labs/ Learning Center	29,046 sf	15.2%
Humanities and Social Sciences	31,695 sf	16.5%
Education	744 sf	0.4%
Visual, Media and Performing Arts	25,096 sf	13.1%
Honors Programs	875 sf	0.5%
Continuing Education	2,154 sf	1.1%
Centers and Institutes	6,712 sf	3.5%
Grant Funded Programs	163 sf	0.1%
Technology	1,009 sf	0.5%
Student and Faculty Activities	37,538 sf	19.6%
Student Services	3,765 sf	2.0%
Administrative Services	34,204 sf	17.8%
Campus Services	10,003 sf	5.2%
Available	8,677 sf	4.5%
Total	**191,681 sf**	**100.0%**



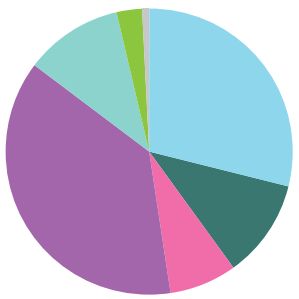
Ingersoll Hall	NASF	%
Classrooms and Computer Labs	23,803 sf	14.0%
Humanities and Social Sciences	5,957 sf	3.5%
Natural and Behavioral Sciences	111,328 sf	65.7%
Education	221 sf	0.1%
Continuing Education	4,129 sf	2.4%
Centers and Institutes	3,659 sf	2.2%
Technology	988 sf	0.6%
Student and Faculty Activities	1,602 sf	0.9%
Student Services	388 sf	0.2%
Administrative Services	6,040 sf	3.6%
Campus Services	10,081 sf	5.9%
Available	1,294 sf	0.8%
Total	**169,490 sf**	**100.0%**



Ingersoll Hall Extension	NASF	%
Classrooms and Computer Labs	22,011 sf	14.4%
Natural and Behavioral Sciences	111,238 sf	72.7%
Continuing Education	1,568 sf	1.0%
Centers and Institutes	7,060 sf	4.6%
Grant Funded Programs	2,844 sf	1.9%
Technology	44 sf	0.0%
Student and Faculty Activities	1,513 sf	1.0%
Student Services	677 sf	0.4%
Campus Services	5,995 sf	3.9%
Total	**152,950 sf**	**100.0%**



William James Hall	NASF	%
Classrooms and Computer Labs	18,883 sf	12.2%
Humanities and Social Sciences	14,656 sf	9.5%
Natural and Behavioral Sciences	50,214 sf	32.5%
Education	19,022 sf	12.3%
Visual, Media and Performing Arts	64 sf	0.0%
Centers and Institutes	14,080 sf	9.1%
Brooklyn College Academy	10,736 sf	7.0%
Grant Funded Programs	240 sf	0.2%
Student and Faculty Activities	1,703 sf	1.1%
Student Services	19,270 sf	12.5%
Administrative Services	3,038 sf	2.0%
Campus Services	2,430 sf	1.6%
Total	**154,336 sf**	**100.0%**



Whitehead Hall	NASF	%
Classrooms and Computer Labs	19,010 sf	28.9%
Business	7,299 sf	11.1%
Humanities and Social Sciences	5,005 sf	7.6%
Visual, Media and Performing Arts	24,776 sf	37.7%
Library	7,274 sf	11.1%
Technology	1,888 sf	2.9%
Campus Services	526 sf	0.8%
Total	**65,778 sf**	**100.0%**

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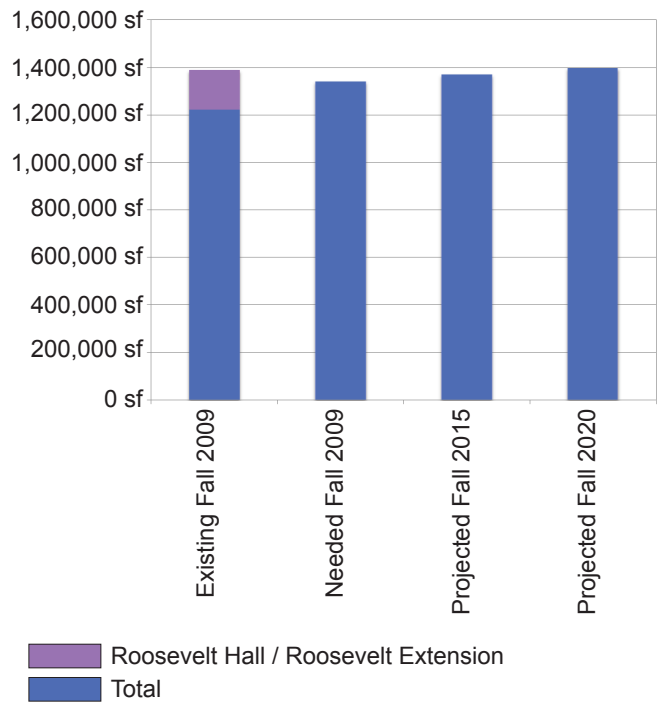
A View of Spring at Brooklyn College

III. PROGRAM FOR GROWTH

III. PROGRAM FOR GROWTH

A. Overview

After extensive interviews with representatives of all of the programs, departments, Schools, support functions and administrative activities at Brooklyn College, thorough discussions with the Provost and Administration, and benchmarking against other CUNY colleges and State universities, the following space program has been developed, outlining the space needs of the College between now and 2020. This is based on CUNY approved enrollment projections that assume a 2% growth over the next decade. As illustrated on the following matrices, in order to meet the academic goals and objectives of the College appropriately, the campus will need approximately 1,467,099 nasf by the year 2020, an increase of approximately 91,510 nasf, translating to an additional 164,718 gsf. This is divided almost equally between academic space for the Schools and Support Functions necessary to operate and maintain the College. The Support Functions include a number of important activities on campus, the largest of which are the Library, Administrative Services, Campus Operations, Food Services, Recreational/ Athletic Activities, etc. The remainder of the required square footage on campus includes Academic Related Functions and Hosted Entities, both of which occupy a relatively modest amount of space -- 49,825 nasf and 10,736 nasf respectively. The following charts summarize the existing and projected space needs across the College.



Brooklyn College's Existing and Projected Space Needs

B. The Schools

In the future, all but one of the newly-established Schools will require more space than they have today, with the greatest shortfall being the School of Business. With only 6,800 nasf it falls far below the nasf/FTEs of other comparable schools, both within CUNY as well as within the SUNY system. To meet its long-term needs appropriately, the School of Business will require approximately 29,000 nasf, exclusive of classrooms. On the other extreme is the School of Natural and Behavioral Sciences where the issue is not the *quantity* of space but rather the *quality* of its facilities, particularly for instruction and research. The School is woefully deficient in the type of quality research and instructional labs that have equipment and environmental controls appropriate to their activities. Today the School of Natural and Behavioral Sciences occupies close to 280,000 nasf. In the future, it is anticipated to require somewhat less space, approximately 253,000 nasf. Some of this shortfall in quality instructional space will be addressed in the new Phase 1 Science Building currently in design. The School of Education, School of Humanities and Social Sciences, and the School of Visual, Media and Performing Arts will all require additional space in the future. Even with the new Leonard and Claire Tow Center for the Performing Arts, the School of Visual, Media, and Performing Arts will still require close to 50,000 nasf of space, much of which is specific in design and physical characteristics to the particular art form.

C. Classrooms

Classrooms are by and large shared space and have been tracked separately for the purpose of the programming effort. To meet the instructional needs of each of the Schools, the space program outlines a total need for an additional 35,000 nasf of classroom space in the coming decade. However, similar to the School of Natural and Behavioral Sciences' requirement for quality instructional space, the need for classrooms at the College is not just an issue of the *number of rooms* but rather their *capacity and quality*, with the greatest need being for classrooms in the range of 50-90 seats and above. In addition, while the College has made significant strides in updating its instructional facilities, providing smart classrooms and the like, many of these spaces remain unchanged from their initial construction in the 1950's and before.

D. Support Functions

In the future, most Support Functions will also require additional space, with the exception of the Library and Recreational/Athletic facilities, which have been renovated and expanded in recent years. In particular, Student and Faculty Activities, Student Services, and Administrative Services will need more space to support the College's growing academic programs and to make up for the existing shortfall of student-oriented spaces. In the future, focus will in part be on providing "non-programmed" spaces such as student lounges, informal study spaces, "hang-out" and social spaces, etc., creating areas where students can come together in small groups to engage in dialogue and discussions. Providing spaces where students feel welcomed and encouraged to stay is particularly important for a campus such as Brooklyn College that is primarily commuter based.

For full details see *Appendix Volume 4: Space Analysis*.

Space Analysis Matrices

Space Analysis - Summary

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Academic Schools and Classroom Space		
Classrooms and Computer Labs	140,413 sf	175,317 sf
School of Business	6,788 sf	29,169 sf
School of Humanities and Social Sciences	60,059 sf	84,883 sf
School of Natural and Behavioral Sciences	279,966 sf	255,252 sf
School of Education	17,746 sf	34,950 sf
School of Visual, Media and Performing Arts	84,980 sf	134,076 sf
Academic Subtotal	**589,952 sf**	**713,647 sf**
Academic Related Functions		
Honors Programs	4,389 sf	6,627 sf
Continuing Education	18,114 sf	25,743 sf
Centers and Institutes	27,322 sf	31,420 sf
Learning Centers	4,725 sf	8,769 sf
Academic Related Functions Subtotal	**49,825 sf**	**63,790 sf**
Total Academic and Related Functions	**639,777 sf**	**777,437 sf**
Hosted Entities		
Brooklyn College Academy	10,736 sf	10,736 sf
Hosted Entities Subtotal	**10,736 sf**	**10,736 sf**
Support Functions		
Grant Funded Programs	6,722 sf	7,904 sf
Library	199,736 sf	199,736 sf
Technology	10,454 sf	12,081 sf
Assembly and Exhibition	67,363 sf	69,613 sf
Athletics, Physical Education and Recreation*	65,346 sf	65,346 sf
Student and Faculty Activities	90,556 sf	113,944 sf
Child Care	4,294 sf	6,059 sf
Student Services	32,744 sf	44,589 sf
Administrative Services	44,197 sf	67,374 sf
Campus Services	80,317 sf	92,281 sf
Support Functions Subtotal	**601,729 sf**	**678,926 sf**
Inactive Space Outside of Roosevelt (Estimate)	*36,000 sf*	*0 sf*
Inactive Roosevelt Complex (Listed as Athletics)	*87,347 sf*	*0 sf*
Total Assignable Square Feet	**1,375,589 sf**	**1,467,099 sf**
Additional Assignable Square Feet		**91,510 sf**
Additional Gross Square Feet**	***	**164,718 sf**
Total Assignable Square Feet in Roosevelt Complex	*168,562 sf*	

* Excludes Roosevelt
** Does not include either Phase 1 or Phase 2 of the Science Project
*** Assignable square feet times 1.8 factor results in gross square feet

Space Analysis Matrices

Classrooms and Computer Labs

Departmental Profile	Existing Fall 2009	Projected Fall 2020
School of Business		37,682 sf
School of Humanities and Social Sciences		46,723 sf
School of Natural and Behavioral Sciences		42,454 sf
School of Education		13,259 sf
School of Visual, Media, and Performing Arts		15,431 sf
Classroom Subtotal	**120,645 sf**	**155,549 sf**
Computer Labs	**19,768 sf**	**19,768 sf**
Computer Lab Subtotal		
Classrooms and Computer Labs Total	**140,413 sf**	**175,317 sf**

School of Business

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Accounting	2,024 sf	8,446 sf
Economics	1,492 sf	7,373 sf
Finance and Business Management	3,272 sf	13,350 sf
School Total	**6,788 sf**	**29,169 sf**
ASF per Student FTE	*4 sf*	*12 sf*
Total Classroom Need	**NA**	**37,682 sf**

Total Student FTEs

Undergraduate	1,628.10	2,005.00
Graduate	70.40	434.40
Total	**1,698.50**	**2,439.40**
Percentage of Growth		*44%*

Potential School of Business Building	
Accounting	8,446 sf
Economics	7,373 sf
Finance and Business Management	13,350 sf
Classrooms	37,682 sf
Dean's Office	3,205 sf
Conference Center	4,500 sf
Centers or Institutes	*2,700 sf*
Café	1,050 sf
Student Lounge	2,400 sf
Campus Services	1,050 sf
Total Assignable Square Feet	***81,755 sf***
Gross Square Feet	*140,958 sf*

Space Analysis Matrices

School of Humanities and Social Sciences

Departmental Profile	Existing Fall 2009	Projected Fall 2020	Surplus or Deficit
Africana Studies	2,370 sf	2,880 sf	(510) sf
Children's Studies Program and Center	428 sf	1,937 sf	(1,509) sf
Classics	2,364 sf	3,630 sf	(1,266) sf
English	11,125 sf	15,640 sf	(4,515) sf
History	3,879 sf	5,154 sf	(1,275) sf
Judaic Studies	1,941 sf	2,723 sf	(782) sf
Modern Languages and Literatures	5,771 sf	7,766 sf	(1,995) sf
Philosophy	3,879 sf	7,754 sf	(3,875) sf
Political Science	5,406 sf	7,468 sf	(2,062) sf
Puerto Rican and Latino Studies	1,382 sf	2,879 sf	(1,497) sf
SEEK Department	5,737 sf	6,016 sf	(279) sf
Sociology	4,933 sf	6,057 sf	(1,124) sf
Speech Communication Arts and Sciences	9,901 sf	13,549 sf	(3,648) sf
Women's Studies	943 sf	1,430 sf	(487) sf
School Total	**60,059 sf**	**84,883 sf**	**(21,539) sf**
ASF per Student FTE	*16 sf*	*22 sf*	
Total Classroom Need for Division	NA	46,723 sf	

Total Student FTEs

Undergraduate	3,314.57	3,433.79
Graduate	402.79	508.56
Total	**3,717.36**	**3,942.35**
Percentage of Growth		*6.05%*

School of Education

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Early Childhood Education/Art Education	4,838 sf	9,323 sf
Childhood Education and Special Education	3,568 sf	7,511 sf
Secondary Education	6,972 sf	12,049 sf
Special Programs	2,368 sf	6,067 sf
School Total	**17,746 sf**	**34,950 sf**
ASF per Student FTE	*13 sf*	*24 sf*
Total Classroom Need	*NA*	*13,259 sf*

Total Student FTEs

Undergraduate	434.20	450.58
Graduate	944.50	982.85
Total	**1,378.70**	**1,433.43**
Percentage of Growth		*4%*

School of Natural and Behavioral Sciences

Departmental Profile	Existing Fall 2009	Projected Fall 2020	Surplus or Deficit
Anthropology and Archaeology	8,613 sf	11,774 sf	(3,161) sf
Biology	61,406 sf	47,491 sf	13,915 sf
Chemistry	59,566 sf	47,778 sf	11,788 sf
Computer and Information Science	17,428 sf	17,841 sf	(413) sf
Earth and Environmental Sciences	20,200 sf	21,225 sf	(1,025) sf
Health and Nutrition Science	14,744 sf	15,983 sf	(1,239) sf
Mathematics	8,885 sf	12,273 sf	(3,388) sf
Physics	38,055 sf	21,037 sf	17,018 sf
Physical Education and Exercise Science	6,721 sf	9,881 sf	(3,160) sf
Psychology	44,348 sf	49,970 sf	(5,622) sf
School Total	**279,966 sf**	**255,252 sf**	**24,715 sf**
ASF per Student FTE	*74 sf*	*42 sf*	
Total Classroom Need for Division	NA	42,454 sf	

Total Student FTEs

Undergraduate	3,327.67	5,004.69
Graduate	454.76	1,074.69
Total	**3,782.43**	**6,079.38**
Percentage of Growth		*60.73%*

School of Visual, Media and Performing Arts

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Art	24,832 sf	49,403 sf
Film	13,130 sf	14,280 sf
Music, Conservatory of	19,284 sf	25,554 sf
Television and Radio	11,059 sf	15,273 sf
Theater	16,675 sf	29,568 sf
School Total	**84,980 sf**	**134,076 sf**
ASF per Student FTE	*67 sf*	*69 sf*
Total Classroom Need	*NA*	*15,431 sf*

Total Student FTEs

Undergraduate	1,108.93	1,608.20
Graduate	160.13	332.00
Total	**1,269.06**	**1,940.20**
Percentage of Growth		*53%*

Space Analysis Matrices

Continuing Education

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Adult Literacy Program	648 sf	972 sf
Continuing Education	5,775 sf	8,135 sf
English-as-a-Second-Language (ESL) Program	7,166 sf	7,137 sf
Institute for Retirees in Pursuit of Education (IRPE)	748 sf	962 sf
Professional Advancement & Continuing Ed. (P.A.C.E.)	4,425 sf	9,510 sf
Continuing Education Total	**18,114 sf**	**25,743 sf**
ASF per Student FTE	*1.5 sf*	*2.0 sf*

Technology

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Academic Computing	1,255 sf	1,800 sf
IFAS Support Desk	162 sf	350 sf
Information Technology	4,826 sf	5,550 sf
ITSC - Media Services	5,628 sf	5,181 sf
Teaching and Learning Center	*0 sf*	*1,350 sf*
Information Technology Total	**10,454 sf**	**12,081 sf**
ASF per Student FTE	*0.8 sf*	*1.0 sf*

Assembly and Exhibition

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Auditorium	2,102 sf	2,102 sf
Proposed Gallery	0 sf	2,250 sf
Gershwin Theater	2,161 sf	2,161 sf
Performing Arts Center Operation (PACO)	63,100 sf	63,100 sf
Assembly and Exhibition Total	**67,363 sf**	**69,613 sf**
ASF per Student FTE	*5.5 sf*	*5.5 sf*

Grant Funded Programs

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Alliance for Minority Participation (AMP)	648 sf	750 sf
Center for Achievement in Science Education	1,140 sf	1,235 sf
College Now	325 sf	750 sf
CSTEP Program	268 sf	450 sf
Early College (STARR)	163 sf	325 sf
Minority Access to Research Careers (MARC)	841 sf	756 sf
Pre-College Collaborative Education Partnerships	0 sf	625 sf
Research Initiative for Scientific Enhancement (RISE)	1,234 sf	1,451 sf
Talent Search Program	2,103 sf	1,562 sf
Grant Funded Programs Total	**6,722 sf**	**7,904 sf**
ASF per Student FTE	*0.5 sf*	*0.6 sf*

Student and Faculty Activities

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Bank - Branch Office	57 sf	75 sf
Bookstore	11,417 sf	12,600 sf
Faculty/Staff/Student Services	8,985 sf	1,523 sf
Food and Dining Services	29,014 sf	32,051 sf
Newspaper - Vanguard	1,342 sf	1,500 sf
Student Activity	27,993 sf	52,987 sf
Student Center	8,283 sf	8,283 sf
Student Government	3,108 sf	4,568 sf
Telephone Booths	357 sf	357 sf
Student and Faculty Activities Total	**90,556 sf**	**113,944 sf**
ASF per Student FTE	*7.4 sf*	*9.0 sf*

Space Analysis Matrices

Administrative Services

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Accounts Payable, Office of	507 sf	1,092 sf
Affirmative Action, Compliance, and Diversity	700 sf	949 sf
Alumni Affairs	2,127 sf	2,916 sf
Associate Provost	1,500 sf	2,626 sf
Brooklyn College Foundation, Inc.	2,328 sf	4,226 sf
Budget and Planning Systems	463 sf	975 sf
Communications - Creative Services	600 sf	1,050 sf
Communications - Editorial Services	753 sf	950 sf
Communications, Office of	2,456 sf	2,496 sf
Dean of the School of Business	0 sf	3,205 sf
Dean of the School of Humanities and Social Sciences	0 sf	2,743 sf
Dean of the School of Natural and Behavioral Sciences	0 sf	2,743 sf
Dean of the School of Education	2,089 sf	2,938 sf
Dean of the School Visual, Media and Performing Arts	0 sf	2,743 sf
Enrollment Services Center	1,090 sf	1,663 sf
Enrollment Services, Office of the Assistant Vice-President for	1,374 sf	1,796 sf
Government and Community Relations, Office of	358 sf	1,438 sf
Graduate Studies and Research, Office of the Dean of	1,384 sf	0 sf
Faculty Council	484 sf	913 sf
Finance and Administration, Office of the Vice-President for	1,690 sf	1,588 sf
Financial Reporting and Reconciliation	720 sf	1,413 sf
Finance and Planning, Office of	1,124 sf	975 sf
Finance, Budget/Planning/Comptroller, Office of the Assistant Vice-President	900 sf	763 sf
Fiscal & Business Services, Office of the Assistant Vice-President	900 sf	725 sf
Human Resources	4,067 sf	4,121 sf
Institutional Advancement	2,100 sf	2,522 sf
Institutional Planning, Office of	750 sf	1,027 sf
Internal Audit	776 sf	813 sf
President, Office of the	3,753 sf	3,780 sf
Provost	2,869 sf	3,240 sf
Purchasing	1,141 sf	1,600 sf
Research and Sponsored Programs	749 sf	1,613 sf
Revenue Accounting, Office of	505 sf	588 sf
Student Affairs Division of - Dean of Student Affairs	1,184 sf	2,750 sf
Undergraduate Studies, Office of the Dean of	2,756 sf	2,400 sf
Administrative Services Total	**44,197 sf**	**67,374 sf**
ASF per Student FTE	*3.6 sf*	*5.3 sf*

Campus Services

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Brooklyn College Volunteer Emergency Medical Squad	811 sf	900 sf
Campus and Community Security Services	6,393 sf	7,976 sf
Central Routing	2,158 sf	6,660 sf
Central Stores	971 sf	1,020 sf
Copy Center (William James Hall)	575 sf	650 sf
Environmental Health and Safety	261 sf	380 sf
Facilities Operations	57,807 sf	62,804 sf
Facilities Planning	2,069 sf	2,028 sf
General Trades Projects	962 sf	1,000 sf
Mail and Messenger Services	1,395 sf	1,750 sf
Printworks	5,173 sf	5,448 sf
Telecommunications	1,742 sf	1,665 sf
Campus Services Total	**80,317 sf**	**92,281 sf**
ASF per Student FTE	*6.5 sf*	*7.1 sf*
Reduced Facilities Operations (Near Term)	***37,997 sf***	

Student Services

Departmental Profile	Existing Fall 2009	Projected Fall 2020
Academic Advisement Center	2,100 sf	3,537 sf
Academic Assessment Department	750 sf	1,794 sf
Academic Standing	350 sf	650 sf
Admissions Information Center (AIC)	2,886 sf	3,888 sf
Bursar	6,623 sf	2,730 sf
Career Development and Student Transfer	2,089 sf	4,264 sf
Center for Student Disability Services	2,112 sf	2,916 sf
Financial Aid	2,100 sf	2,822 sf
Health Clinic	2,738 sf	2,862 sf
Health Programs and Immunization Requirements	666 sf	959 sf
International Student Services	129 sf	1,067 sf
Personal Counseling	1,500 sf	2,916 sf
Placement Testing	816 sf	1,500 sf
Registrar	2,841 sf	4,010 sf
Scholarships	1,576 sf	2,079 sf
Student Testing	2,759 sf	4,488 sf
Transfer Student Services	0 sf	1,209 sf
Veterans Affairs	709 sf	900 sf
Student Services Total	**32,744 sf**	**44,589 sf**
ASF per Student FTE	*2.7 sf*	*3.5 sf*

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The Lily Pond at Brooklyn College

IV. THE MASTER PLAN AMENDMENT

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A. Introduction

Based on the approved student enrollment projections for 2020 and the anticipated space required to accommodate existing and burgeoning educational programs and activities, facilities at Brooklyn College will need to be renovated and expanded over the next decade. While existing buildings have served the College well over the years (in some cases for close to seven decades), they are all in need of repair, modernization and/or upgrade. Even with much-needed improvements, construction of new and expanded facilities will be required for the College to meet its growth projections.

B. Potential Sites for Future Development

Brooklyn College is an urban campus and has limited land on which to accommodate new buildings. It is physically constrained on all sides, with the exception of the Long Island Railroad right-of-way which forms the southern boundary of the College. Use of this right-of-way could be explored for joint public/private development opportunities in the future. With limited real estate, the College must use its land resources judiciously, maximizing the development potential of sites while respecting the overall historic scale and massing of the campus.

In the short-term, a site has been identified for new construction to accommodate Campus Services when Roosevelt Hall/Roosevelt Extension is demolished. This site is the east courtyard of Ingersoll Complex. Details of this recommendation are discussed in *Appendix Volume 1: Short-Term Recommendations*.

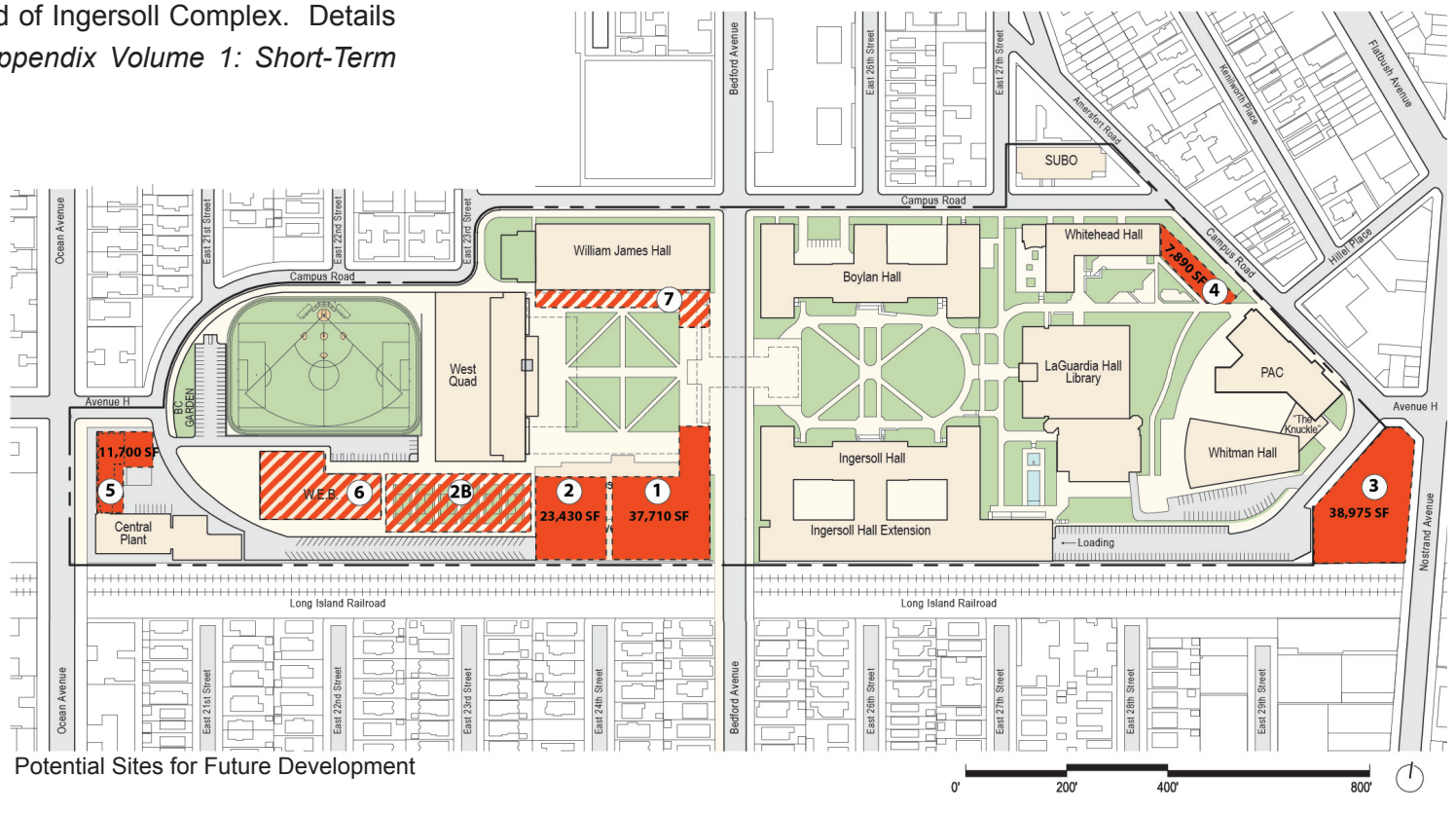
The Plan identifies five sites for new construction within the 2020 planning horizon, and three additional sites representing long-term opportunities. The five primary sites are:

1 + 2. Roosevelt Hall / Roosevelt Extension

The first and second opportunities for new construction is a site identified in the 1995 Master Plan, created when Roosevelt Hall/Roosevelt Extension is demolished. Providing more than 285,478 gsf, Roosevelt Hall/Roosevelt Extension represented one of the College's major space assets for many decades. However, due to its age, structural conditions, and infrastructure challenges, the decision was made to demolish the building to provide two new sites for future facilities. Following recommendations of the 1995 Master Plan, the first site will be the home to the Phase 1 Science Building, currently in planning and design.

This site sits close to Bedford Avenue and is bordered on the south by the Long Island Railroad. The Plan proposes that the new building's east façade follow the alignment of the original Roosevelt Hall, creating a strong urban street edge. It also proposes an extension to the north along Bedford Avenue as part of the Phase 1 Science Building or as a future addition. By extending the structure northward, the building helps to enclose and embrace the West Quadrangle, partially buffering it from the traffic and noise of Bedford Avenue.

The second site is west of the Phase 1 Science Building. Given its immediate adjacency, construction on this site should complement the scale and massing of its new neighbor. The Plan recommends that both of these sites be built to approximate the scale of the buildings being demolished so as not to under-develop this key site, given the College's limited land resources.



Potential Sites for Future Development

3. Nostrand Avenue Site

The third site is Nostrand Avenue/Avenue H at the south-east edge of campus. It represents not only an opportunity to provide needed space for the College, but also, in combination with the new Leonard and Claire Tow Center for the Performing Arts, it aids the College in creating a new image and identity along Campus Road as well as Nostrand Avenue. With the newly-acquired land just south of the existing parking lot 1 on Avenue H, this site offers the chance to construct between 325,000 - 425,000 gsf, far more than what the College requires even in the long-term. As such, this site provides the opportunity to consider a rather significant mixed-use, public/private development partnership.

4. The Extension of Whitehead Hall

Both the 1995 Master Plan and the 2011 Master Plan Amendment recommend that Whitehead Hall be considered for expansion to the west. This area is currently used as exterior play space for child care and is fenced on all sides. Apart from the need to use this site for an extension, having a children's play area with playground equipment at one of the College's major entries sends a mixed message to visitors arriving at the campus.

The site for the addition of Whitehead Hall is triangularly shaped and stretches along Campus Road to the north, defining the interface between the College and nearby community. The southeast edge of the site is set back, respecting the popular outdoor wood seating deck adjacent to the campus pathway. While modest in size, a 7,500 gsf footprint, its location adjacent to the programs and activities housed in Whitehead Hall as well as the new Leonard and Claire Tow Center for the Performing Arts make this an important site for expansion.

5. Central Plant

With Roosevelt Hall/Roosevelt Extension being demolished, the campus will lose not only its primary loading dock facilities but also a good deal of existing space used by Campus Services, including storage. The fifth potential site for expansion is one that can address this issue, although not in its entirety. The identified site is part of the Central Plant area, located at the west end of the campus, just south of Avenue H and bordered on the west by Ocean Avenue. Currently this parcel houses the Heating and Cooling Plants, Facilities Operations and Facilities Planning, as well as a low-rise structure that accommodates many of the College's maintenance vehicles. Although the footprint available for construction is rather modest, a multi-level building at this location could both continue to accommodate service vehicles as well as provide much-needed space for Campus Services. However, it should be noted that this site may have environmental hazards that will need to be evaluated prior to any development. There are known to be underground oil tanks in this area. Their actual condition however is unknown and will need to be investigated prior to further consideration of development in this area.

C. Long-term Expansion Opportunities

Apart from the five sites recommended for possible new or expanded facilities in the next ten plus years, three additional sites have been identified for potential long-term development. These sites are beyond the planning horizon of The Plan, but should be considered by the College as future opportunities. The first is the existing WEB building (6), which was built as a *temporary* structure in 1999 and will likely be retained for the next decade or more. However, the demolition of the WEB would provide a rather significantly sized parcel for development, particularly if combined with the area where the tennis courts now sit (2B). Given the importance of the tennis program to the College, if this scenario were to be seriously considered, the tennis courts would need to be relocated. At this time however, The Plan recommends retaining the courts in their current location until a compelling development need arises that only this site can meet.

The final site proposed for long-term expansion is an addition on the campus side of William James Hall (7). This could be constructed at three stories in front of the existing façade, approximately 25 feet to 30 feet in depth, and could provide 45,000 gsf of expanded space for Student Services and/or Classrooms. Such an addition would also help to mitigate the scale of the building relative to the West Quad Building, as well as provide for better integration architecturally with its neighbors.

D. Considering the Future

The Plan sets forth a series of recommendations for accommodating future growth while simultaneously advancing the College's broader pedagogical goals. By dovetailing the College's Strategic Planning efforts with the overall campus master planning process, the College is able to leverage its investments in physical improvements to advance its academic aspirations. The process for this began by understanding and quantifying the projected space needs of all programs, activities, and offerings of the College, how they

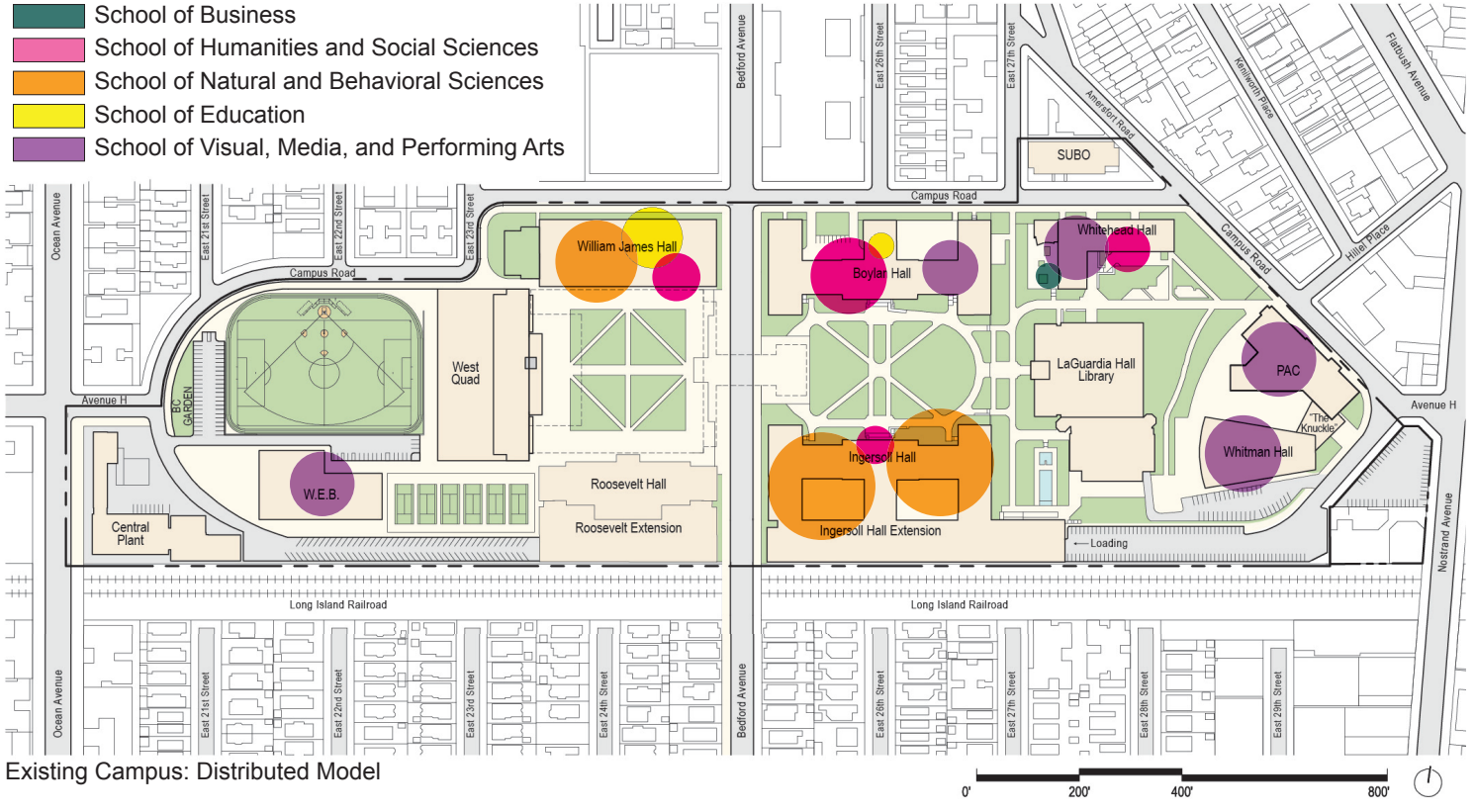
may grow or contract in the future, and where they might best be located to serve students and foster collaborations and discourse among colleagues. The Plan tested a series of options that included relocating programs and activities, renovating and/or expanding facilities and the construction of new buildings. Each option had somewhat distinct academic and financial implications, which were reviewed and vetted with stakeholders from the College and CUNY. The resulting recommendations are a result of a highly participatory process and include identification of specific locations to meet the College's programmatic needs for space; qualitative factors such as adjacencies, visibility, accessibility, and the ability to contribute toward achieving the College's overall mission and broader goals.

The Plan focuses on two major objectives. The first is finding an appropriate home for each of the Schools, advancing the College's academic aspirations, and bringing image, identity, and coherence to the newly formed Schools. The second is ensuring that programs, activities, and services that support students are highly visible, easily accessible and exceptionally responsive to the students' needs. Given the magnitude of space (more than half of the overall projected nasf) to house the Schools and their related functions appropriately, The Plan begins by addressing their space needs and recommended locations.

E. Organizational Strategy of the Schools

In the Fall of 2010, Brooklyn College launched a new academic organizational structure, moving from a collegiate environment of individual departments and programs to one with a decanal leadership, organizing departments into five Schools lead by Deans. The five schools include: School of Natural and Behavioral Sciences, School of Business, School of Education, School of Humanities and Social Sciences, and the School of Visual, Media and Performing Arts. As this structure is only just evolving, existing faculty offices for deans, faculty, and staff as well as instructional spaces associated with each of the Schools are currently distributed throughout the College's academic buildings. As the College plans for its future by expanding buildings, constructing new facilities, and renovating existing structures, The Plan provides an opportunity to align the campus' physical facilities with its organizational structure, with each School in the future being identified with a particular building or buildings. While developing alternative locations for accommodating the Schools, The Plan also proposes strategies for accommodating Student Services, recognizing the importance of locating these functions on the lower levels of buildings where they are highly visible and accessible. As their name implies, these programs and activities are to service the College's over 16,000 students and therefore must be welcoming and easy to find.

To consolidate Schools and conveniently locate Student Services, a number of options were considered. For some Schools, the options were relatively obvious and finite; for others, the solution was more complex, with a variety of alternatives explored. The alternatives, along with the benefits and limitations of each, can be found in *Appendix Volume 5: Master Plan Options*. The preferred recommendations of The Plan are presented herein. They are summarized as follows:



Existing Campus: Distributed Model

1. School of Business on the Nostrand Avenue Site.

2. School of Natural and Behavioral Sciences in the Phase 1 Science Building and in a Renovated Ingersoll Hall / Ingersoll Extension.

3. School of Humanities and Social Sciences distributed; with Humanities in Boylan Hall and Social Sciences in the Phase 2 Academic Building.

4. School of Education in William James Hall.

5. School of Visual, Media and Performing Arts distributed between Boylan Hall, Whitehead Hall and Extension, Whitman Hall, the new Leonard and Claire Tow Center for the Performing Arts (PAC), Ingersoll Hall, and WEB.

1. School of Business

Of all the newly-formed Schools at Brooklyn College, the School of Business is in the greatest need of space and currently functions in just over 6,500 nasf. In the future, this School is anticipated to grow to approximately 66,851 nasf, including necessary classrooms and support spaces. Schools of Business in general tend to be more community-oriented than most other academic programs on campus, offering more evening courses, attracting a high percentage of older, part-time students, providing conference facilities, and are often associated with some level of retail (bookstores, etc.). They also tend to require access to parking, given the nature of the programs and activities they house. These characteristics make the School of Business an excellent candidate for an “edge site” on the College campus -- serving as an interface between the surrounding community and the campus core.

To accommodate the new School of Business, two options were explored. The first locates the School adjacent to the Phase 1 Science Building. The second and preferred option outlined here, recommends that the School of Business be located on the Nostrand Avenue site, allowing it to be a “connector” building between the broader Brooklyn community and the Brooklyn College campus. This site, sitting prominently along Nostrand Avenue at the terminus of Campus Road, is highly visible and provides close proximity to existing parking in the Target parking structure. Current zoning of the site allows for a significant amount of development, 325,000 – 450,000 gsf, which is far more than the School of Business requires. This additional square footage would allow the School to be part of a larger, mixed-use facility potentially funded through a joint public/private partnership.

2. School of Natural and Behavioral Sciences

The 1995 Brooklyn College Master Plan recommended new facilities for the Sciences as one of its highest priorities while identifying Roosevelt Hall/ Roosevelt Extension as the site. In the intervening years, a two-phased building for the Sciences was conceived. However, instead of proposing two new structures, The Plan proposes a combination of new and renovated space, with a Phase 1 Science Building located on the site of Roosevelt Hall/ Roosevelt Extension and a fully renovated Ingersoll Hall/Ingersoll Extension. The new Phase 1 Science Building will provide general entry-level science instructional space, a Learning/Tutoring Center, Student Lounges, a computer lab, and a café for use by the entire student population. In keeping with the recommendations, the café and computer lab will be located on the ground floor, highly visible and accessible to help activate the West Quadrangle with the movement of students in and out of the building.

The laboratory research space associated with the Sciences will remain in Ingersoll Hall/Ingersoll Extension, fully renovated to maximize the existing physical assets of the College. The floor plans illustrated on pages 54-55 are a conceptual illustration of how the proposed space program for the new School of Natural and Behavioral Sciences might be accommodated in this facility, with the more lab-intensive spaces located in the newer Ingersoll Extension. (The specific space needs and desired adjacencies will be confirmed and refined as the project moves forward.)

3. School of Humanities and Social Sciences

The School of Humanities and Social Sciences is one of the more complex Schools to locate in part because of its size, requiring approximately 84,883 nasf, *without* associated classrooms, and in part because it provides the Core Curriculum program for all students at the College. For these reasons, four options were considered, each having potential benefits and limitations.

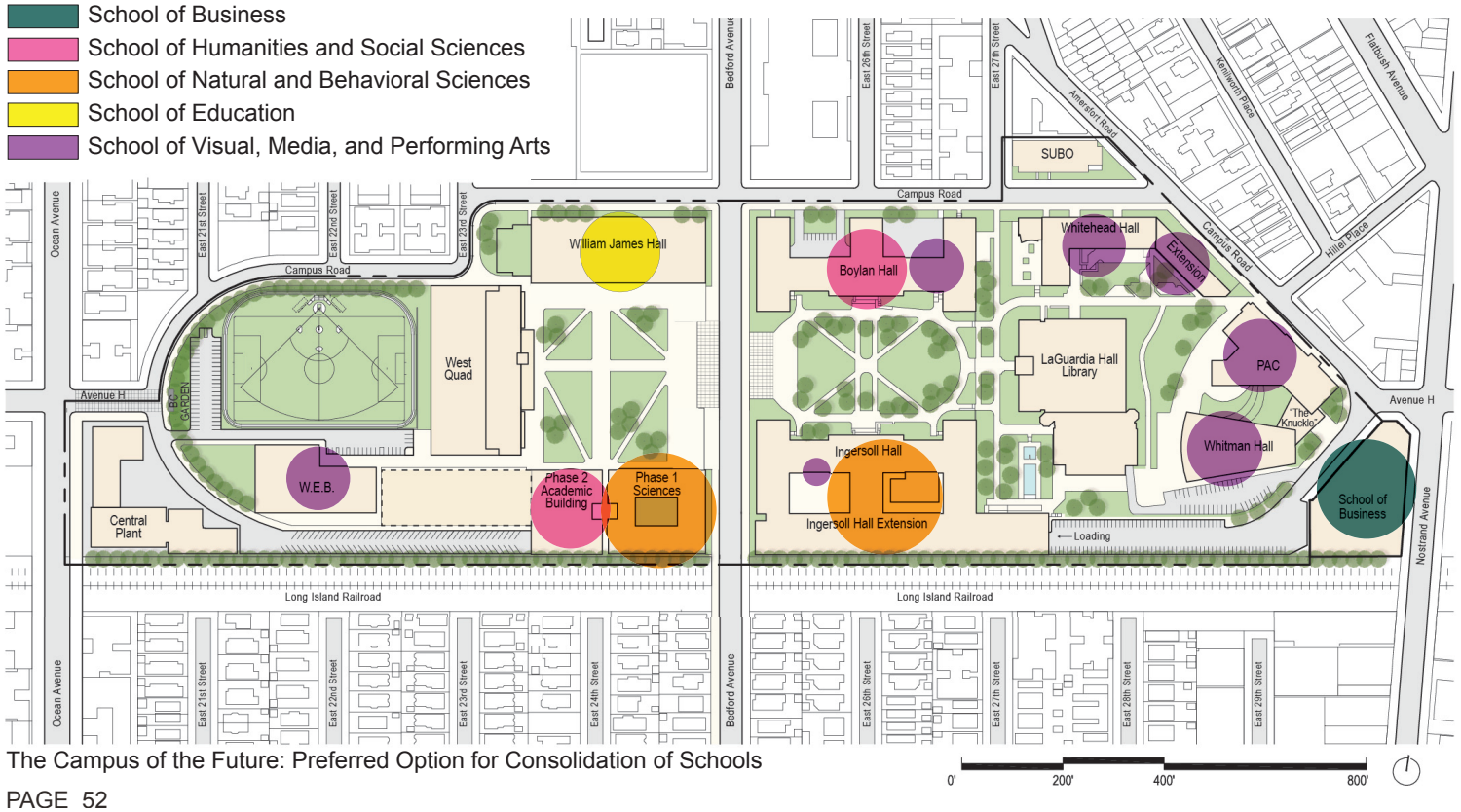
Humanities have historically been at the core of a liberal arts education, both literally and philosophically. For Brooklyn College, this has meant Humanities is located in Boylan Hall. However, as programs evolve over time, requiring more space, the departments that comprise the School of Humanities and Social Sciences became dispersed throughout various academic buildings

on campus, with space in William James, Ingersoll, Whitehead, and Boylan Halls. In the future, the School may once again want to be physically and symbolically located at the heart of the campus, on the historic East Quadrangle. To test this approach, two options were explored locating the School of Humanities and Social Sciences in Boylan Hall, but found that to do so would require displacing *all* of the existing Administrative Services spaces, including the President's office, as well as the Visual Arts studios on the upper floor. These spaces were constructed specifically for the arts in the 1980's. Two additional options consider locating the School on the West Quadrangle in William James Hall, but like the "all-Boylan option," this would require relocating the School of Education and most of Student Services out of the building and would still not achieve the objective of placing the School at the symbolic heart of the campus.

After evaluating these options and others, holding multiple meetings and reviews with members of the Working and Steering Committees, and receiving input from Town Hall forums, a preferred option for the School of Humanities and Social Sciences emerged. This option locates the School in two buildings, with programs and spaces associated with Humanities located in Boylan Hall and those of Social Sciences located in a portion of a new mixed-use Phase 2 Academic Building adjacent to the Phase 1 Science Building. Even though the School would be divided into two separate buildings, this option consolidates programs and activities considerably more than they are today. Equally important, this option achieves one of the College's primary goals of placing Humanities at the core of the campus while not displacing other important activities, such as Administration, which should also be centrally located. Furthermore, placing the Social Sciences in a mixed-use building adjacent to the Phase 1 Science Building creates a hub of academic activity on the West Quadrangle, ensuring that the new science facilities are not isolated in a precinct otherwise dominated somewhat by student/recreation activities.

4. School of Education

The School of Education is currently located in three buildings on campus: Boylan, Ingersoll and William James Halls, with the majority of spaces located in the latter. Two options were explored for the School of Education. The first option placed the School in the Phase 2 Academic Building adjacent to the Phase 1 Science Building. However, this would leave a significant amount of space vacant in William James Hall that would need to be occupied by another School. Having explored and dismissed the concept of the School of Humanities and Social Sciences in William James Hall leaves few other major opportunities for the use of this space.



The Campus of the Future: Preferred Option for Consolidation of Schools

Therefore, the recommended option is to reinforce William James Hall as the home for the School of Education. This keeps with its current use and would allow other educational functions, such as the Brooklyn Academy, the Honors Program, and potentially the Brooklyn College Community Partnership, should it remain on campus long-term, to join the School of Education in making William James Hall a building focused on education. Sitting between Campus Road and the West Quadrangle, with entries from both the street and the Quadrangle, this location places the School of Education within the campus and the community, providing

an appropriate transition between the two. This option also allows Student Services to expand in the building on its lower floors, complementing those services located in the West Quad Building, reinforcing the concept of a student-oriented precinct.

5. School of Visual, Media and Performing Arts

While The Plan recommends consolidating the newly-established Schools so that each School is housed in one or potentially two facilities, thereby associating the Schools with a particular building or area on campus, in the case of the School of Visual, Media and Performing Arts, The Plan recommends this School continue as a distributed model. The spaces serving the School are currently distributed and are primarily special purpose rooms, requiring particular heights/volumes, acoustical properties, or environmental conditions. As several of these spaces already exist and/or are under construction and represent a significant financial investment, The Plan recommends that these spaces remain in their current locations and be upgraded to today's standards, with the exception of the sculpture and clay studios located on the lower level of Whitehead Hall. Ideally, these spaces need access to a loading dock for moving materials in and out as well as exterior space for kilns, drying, etc. Therefore, The Plan proposes the ceramic and sculpture studios be relocated to the lower level of Ingersoll Hall to meet both requirements.

Rendering of 25 Washington Avenue at Steiner Studios, Future Home of the Graduate Film Program

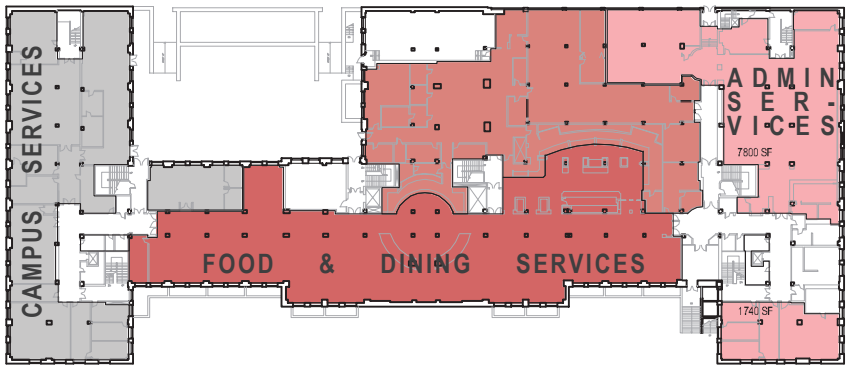
The School also requires additional space in the short and long-term. While the new Leonard and Claire Tow Center for the Performing Arts will provide much needed performance, rehearsal and practice space for both the Brooklyn Conservatory of Music and Theater Department, it does not meet the full range of spaces required for either. Additionally, the new PAC will not provide the visual arts gallery that has been requested for some time. To meet these needs, The Plan recommends that Whitehead Hall be expanded similar to the recommendations in the 1995 Master Plan.

Lastly, the temporary structure on the west end of campus, known as WEB, currently houses the undergraduate Film Department. Since this structure will continue to serve the College for years to come, Film will remain here until further developments in the curriculum are made and additional study conducted for its relocation. However, an exciting new development is currently underway. Across town at the Brooklyn Navy Yard, Brooklyn College will soon launch a new Graduate School of Cinema at Steiner Studios, becoming the country's first graduate film school to be incorporated into a working film lot. It is anticipated to be open in time for the September 2013 semester. Housed on two floors of a historic seven-story building at 25 Washington Avenue, Brooklyn College will soon be able to offer up to 275 students the opportunity to enroll in nine degree programs in film.

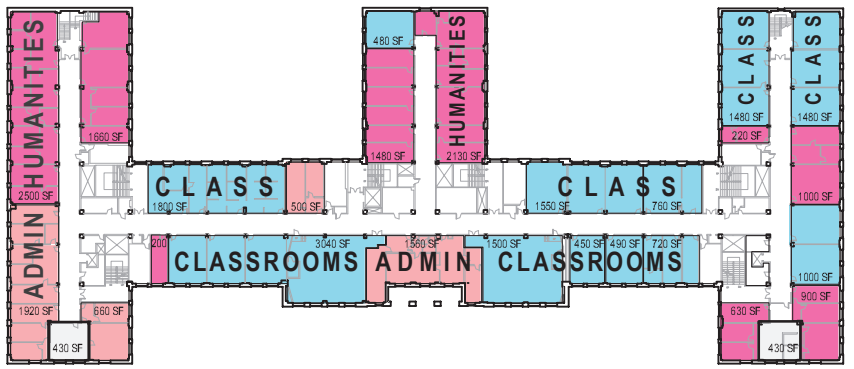
The following conceptual floor plans illustrate how Boylan Hall, Ingersoll Hall/ Ingersoll Extension, Whitehead Hall, and William James Hall can be renovated and reorganized to incorporate the Schools, classrooms/instructional spaces, student focused programs, social spaces, and support programs. Common to all are the following principles: (1) locate Student Services on the entry floor of buildings where possible, (2) cluster classrooms either on one floor or vertically, close to stairs to make them easier to find, (3) "carve out" small social spaces where students can gather informally and (4) in Boylan and Ingersoll Halls, introduce natural light into the corridors by removing one or two small programmed spaces at each end of the hallways.

F. Proposed Program Diagrams

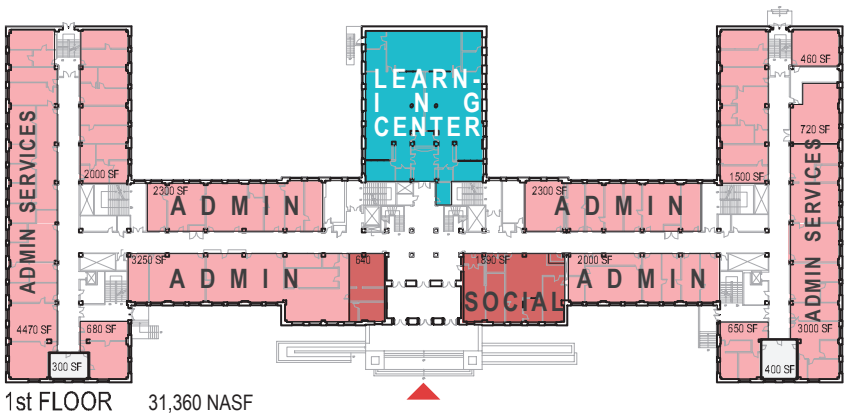
1. Boylan Hall



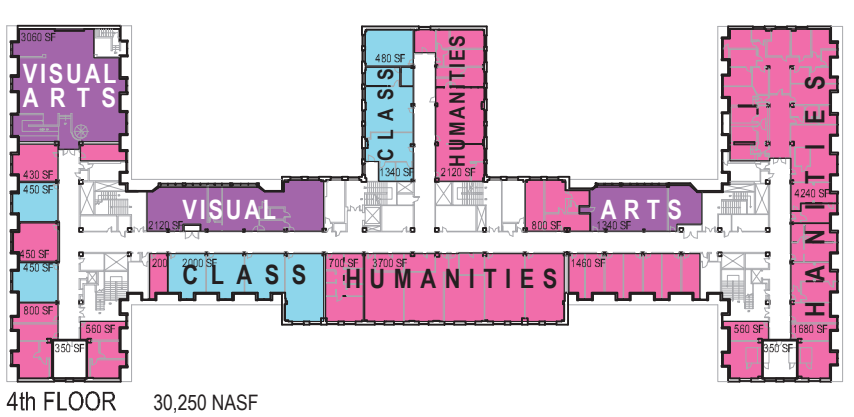
BASEMENT 43,180 NASF



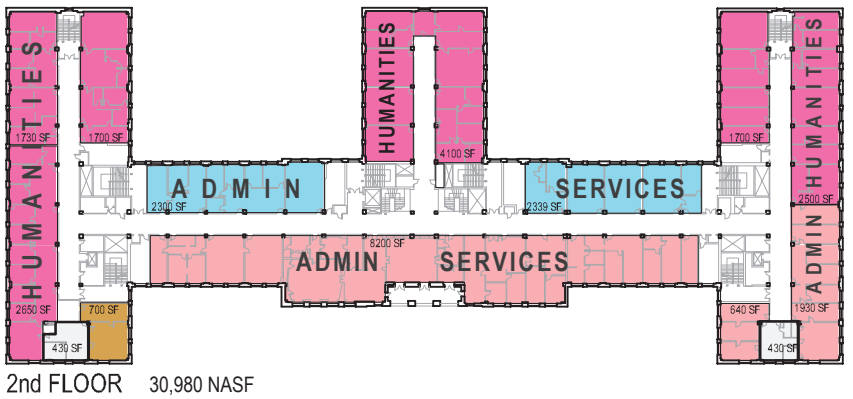
3rd FLOOR 31,220 NASF



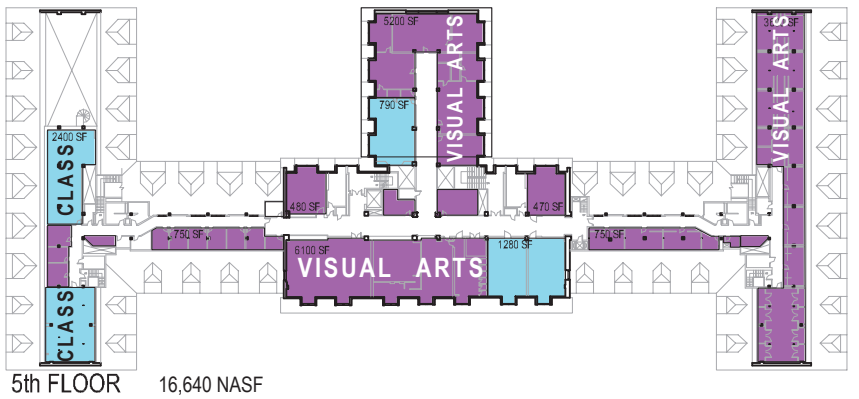
1st FLOOR 31,360 NASF



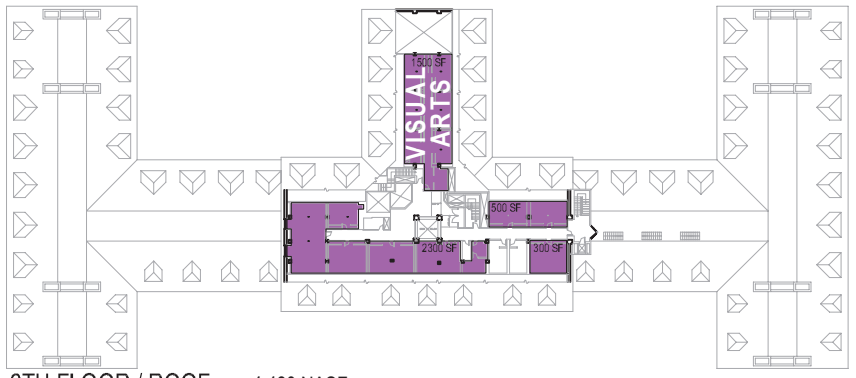
4th FLOOR 30,250 NASF



2nd FLOOR 30,980 NASF

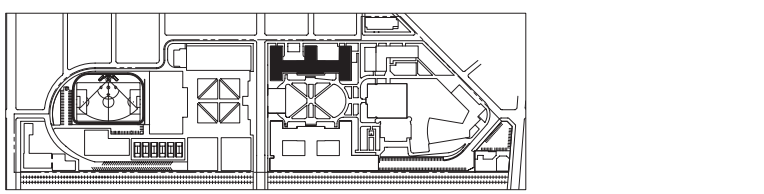


5th FLOOR 16,640 NASF



6TH FLOOR / ROOF 4,480 NASF

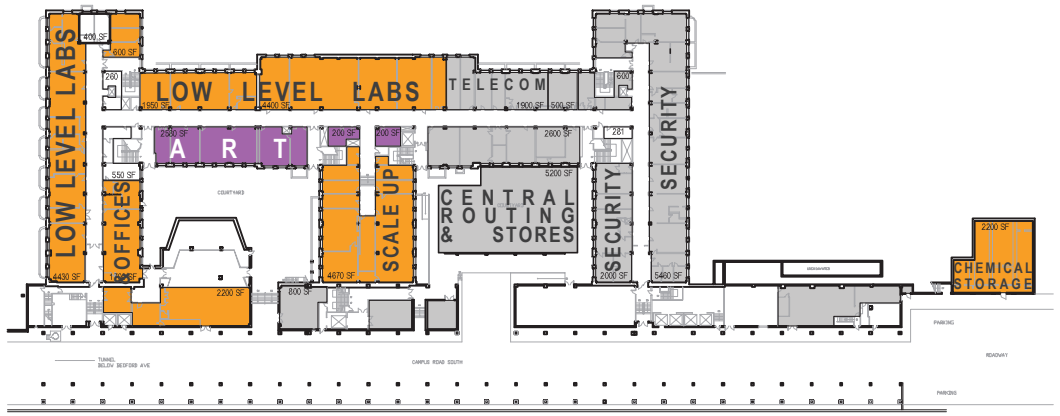
PROJECTED 2020	PROPOSED/ ACHIEVED	
49,400 NASF	25,100 NASF	**School of Visual, Music and Performing Arts** - Visual Art
40,800 NASF	40,800 NASF	**School of Humanities**
30,460 NASF	28,800 NASF	**Instructional Classrooms and Labs**
750 NASF	700 NASF	**Centers and Institutes** - The Ethyle R. Wolfe Institute for the Humanities
4,750 NASF	4,750 NASF	**Learning Center**
32,050 NASF	27,050 NASF	**Student and Faculty Activities** - Food and Dining Services, Bank,
67,370 NASF	48,290 NASF	**Administrative Services** - President, Provost, Comptroller, Accounts, Revenue Accounting, Internal Audit, Affirmative Action Compliance and Diversity, Budget, Communications, Business Center, Enrollment Services Center, Faculty Council, Financial Reporting and Reconciliation, Human Resources, Purchasing, Research and Sponsored Programs. Deans of Business, Humanities and Social Sciences, Natural and Behavioral Sciences, Graduate Studies and Research, Undergraduate Studies, Student Affairs
8,100 NASF	8,100 NASF	**Campus Services** - Printworks, Facilities Operations and Maintenance, Mail and Messenger Services
		Social Spaces ,Corridors, Building Cores, Mechanical
		Main Entry



SCALE 1:100 0' 50' 100' 200'

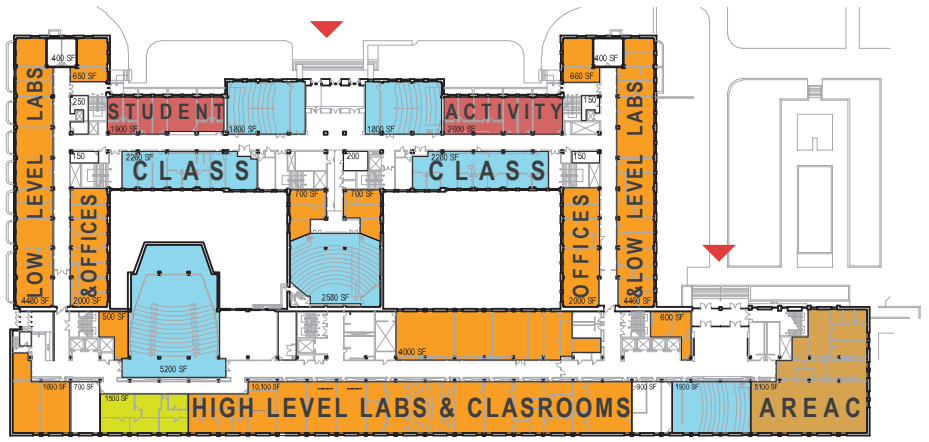
F. Proposed Program Diagrams (Continued)

2. Ingersoll Hall / Ingersoll Extension

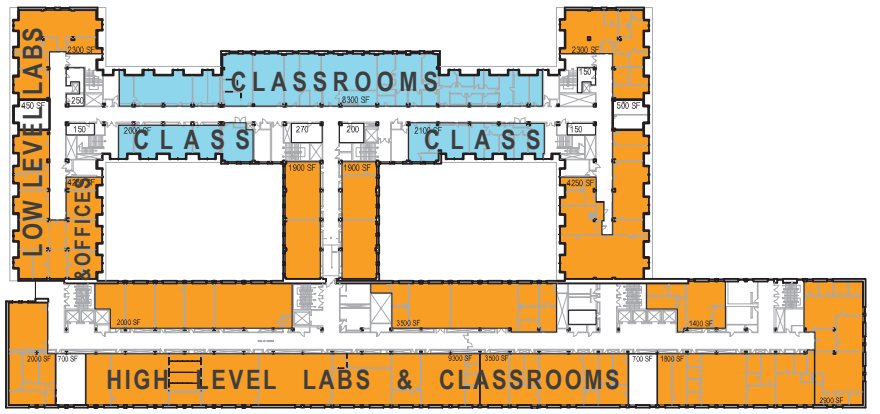


BASEMENT 42,605 NASF

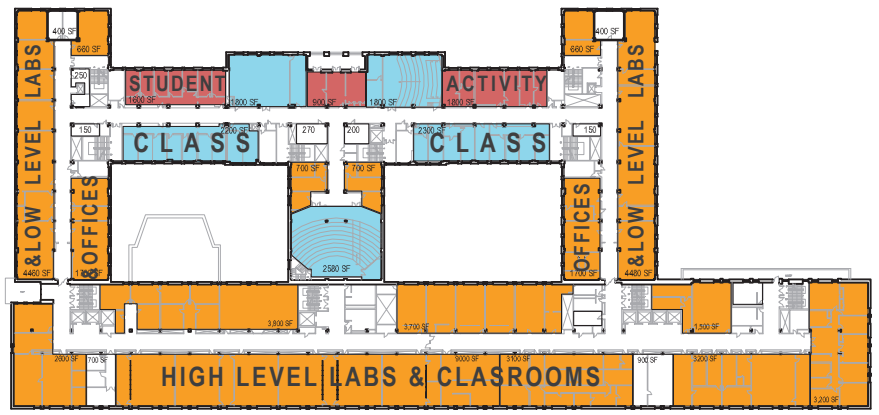
3rd FLOOR 63,210 NASF



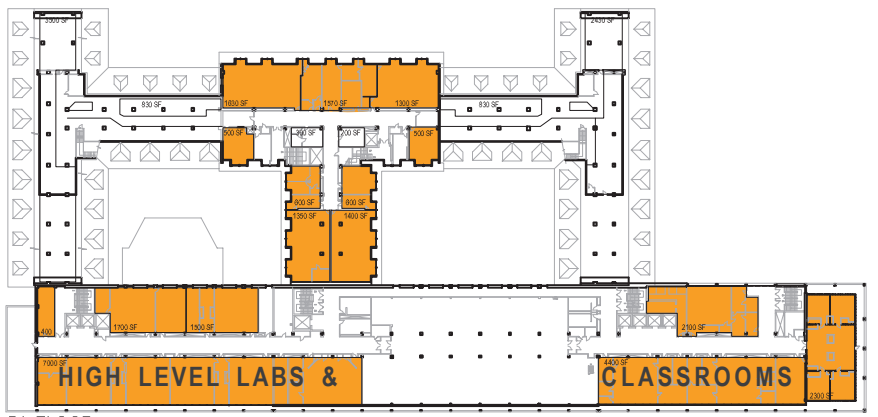
1st FLOOR 61,820 NASF



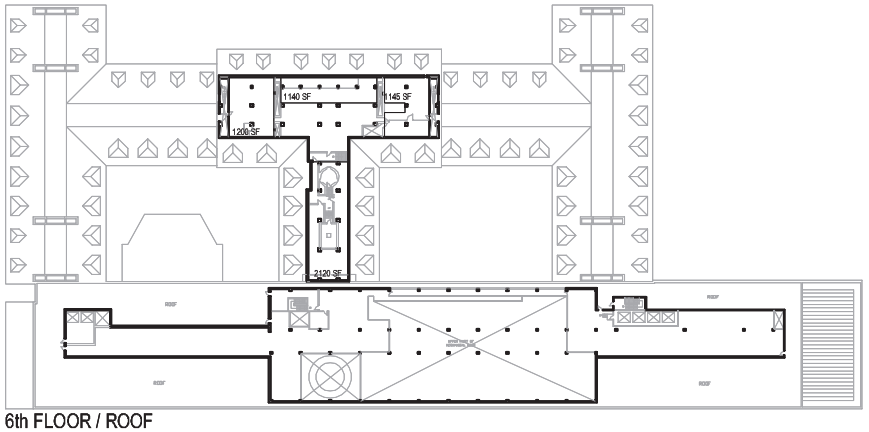
4th FLOOR 61,840 NASF



2nd FLOOR 62,960 NASF

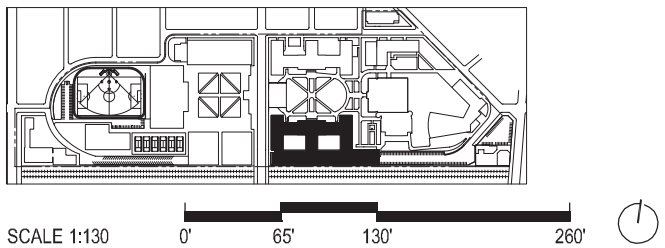


5th FLOOR



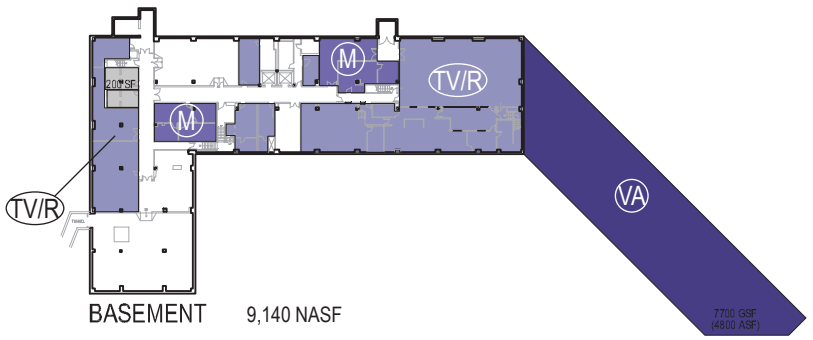
6th FLOOR / ROOF

PROJECTED 2020	PROPOSED/ ACHIEVED	
216,130 NASF	216,130 NASF	**School of Natural and Behavioral Sciences**
2,800 NASF	2,800 NASF	**School of Visual, Music and Performing Arts** - Visual Art
42,450 NASF	43,170 NASF	**Instructional Classrooms and Labs**
5,720 NASF	5,130 NASF	**Centers and Institutes** - AREAC
1,450 NASF	1,500 NASF	**Grant Funded Programs** - RISE
113,945 NASF	12,300 NASF	**Student and Faculty Activities** - Student Activity, Student Clubs
20,770 NASF	20,770 NASF	**Campus Services** - BC Volunteer Emergency Medical Squad (EMS), Facilities Operations and Maintenance, Env. Health and Safety, Trades, Community and Campus Security, Central Stores, Central Routing, Telecommunications
		Social Spaces, Corridors, Building Cores, Mechanical
		Main Entry

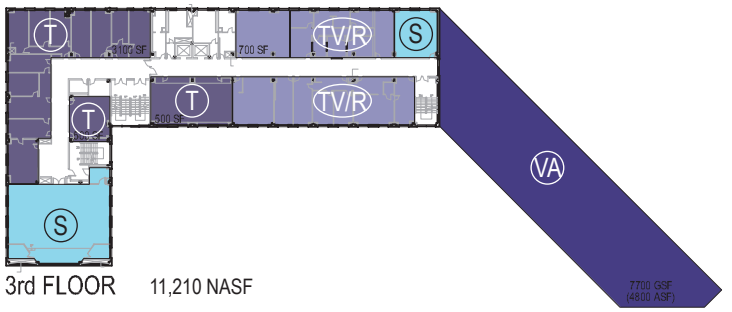


F. Proposed Program Diagrams (Continued)

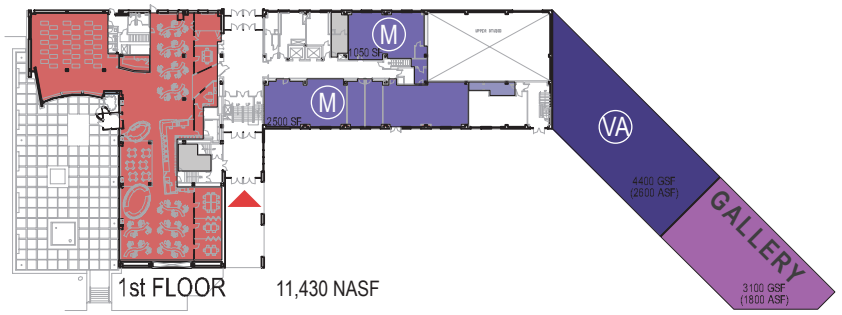
3. Whitehead Hall / Whitehead Extension



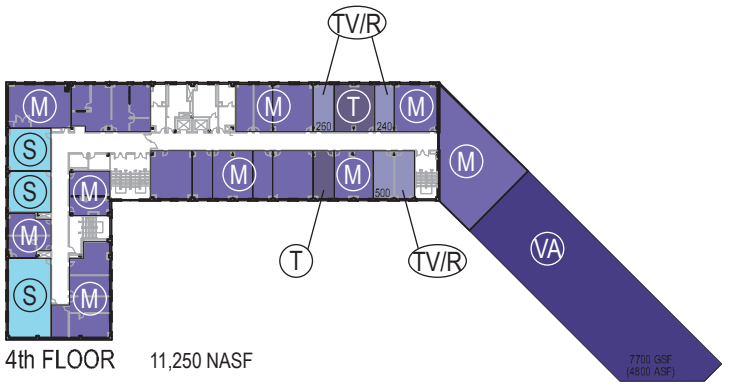
BASEMENT 9,140 NASF



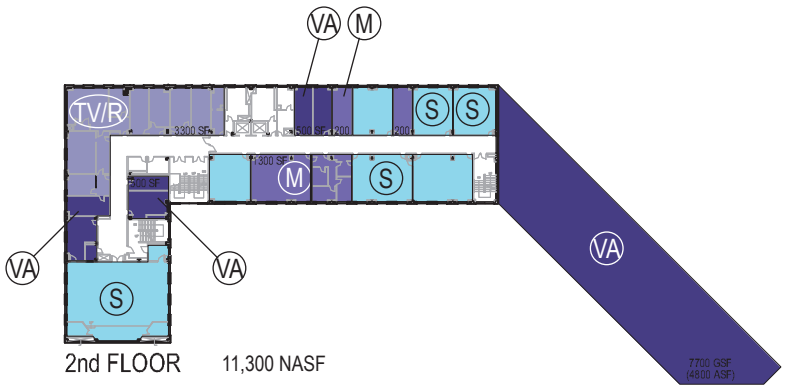
3rd FLOOR 11,210 NASF



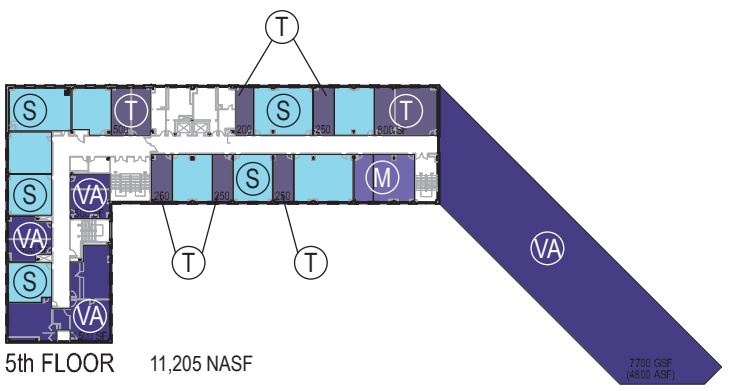
1st FLOOR 11,430 NASF



4th FLOOR 11,250 NASF

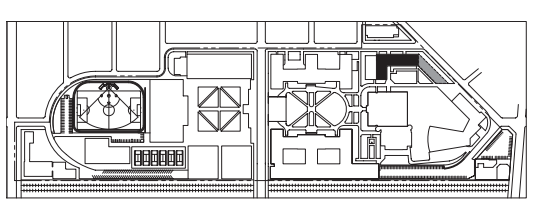


2nd FLOOR 11,300 NASF



5th FLOOR 11,205 NASF

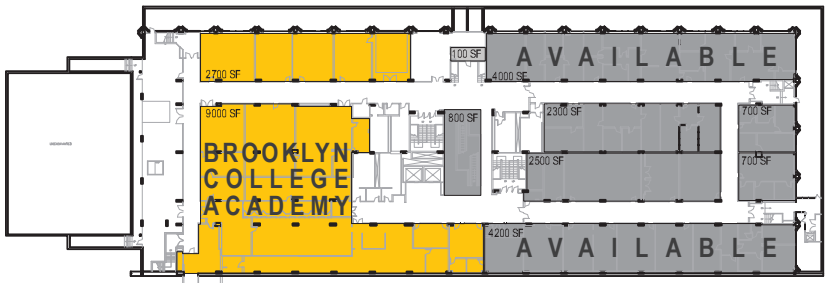
PROJECTED 2020	PROPOSED/ ACHIEVED	
		School of Visual, Media and Performing Arts
47,900 NASF	28,220 NASF	Visual Arts (VA)
25,554 NASF	15,830 NASF	Conservation of Music (M)
		[1,500 ASF from Roosevelt; 4 offices, 1 key board lab, choral library, lounge]
15,270 NASF	15,300 NASF	Television & Radio (TV/R)
7,700 NASF	7,800 NASF	Theater (T)
		[2,500 ASF additional needed; Acting, Design, Costume Studios]
1,500 NASF	1,500 NASF	Gallery
15,430 NASF	15,400 NASF	**Instructional Classrooms and Labs | 14 Smart Classrooms** (S)
	8,175 NASF	**Student and Faculty Activities** - Library Cafe, Food and Dining Services
	900 NASF	**Campus Services** - Facilities Operations & Maintenance, Community and Campus Security, Telecommunications
		Corridors, Building Cores, Mechanical
		Main Entry



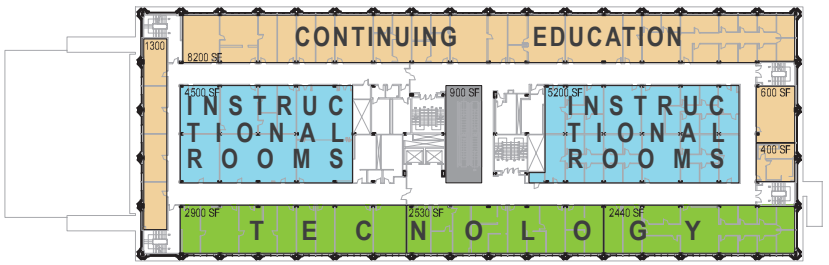
SCALE 1:100 0' 50' 100' 200'

F. Proposed Program Diagrams (Continued)

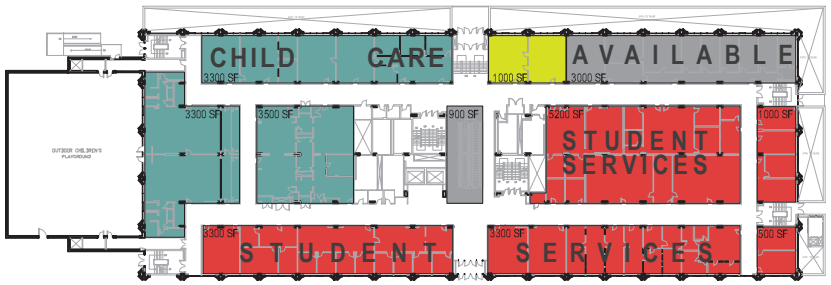
4. William James Hall



BASEMENT 23,650 NASF



3rd FLOOR 26,960 NASF



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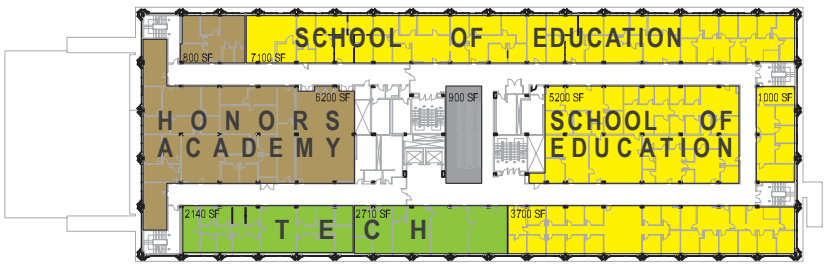
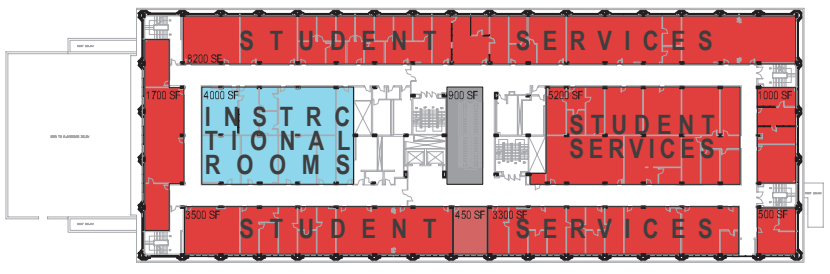


4th FLOOR 26,960 NASF



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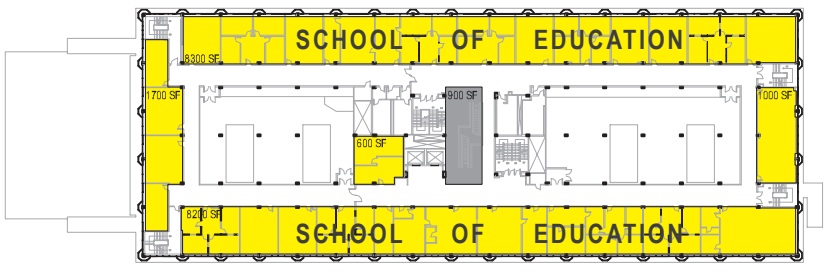
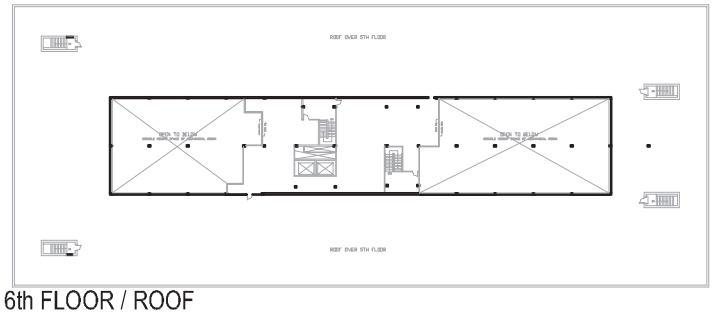
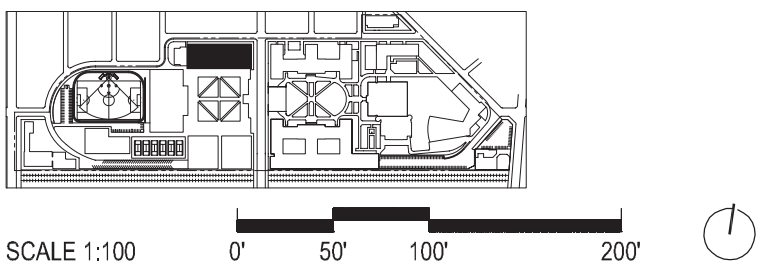


5th FLOOR 19,080 NASF



6th FLOOR / ROOF

PROJECTED 2020	PROPOSED/ ACHIEVED	
34,950 NASF	35,000 NASF	**School of Education**
13,260 NASF	13,300 NASF	**Instructional Classrooms and Labs**
6,600 NASF	6,780 NASF	**Honors Program** - Honors Academy
25,740 NASF	10,165 NASF	**Continuing Education**
10,740 NASF	10,740 NASF	**Hosted Entities** - Brooklyn College Academy
1,075 NASF	1,100 NASF	**Grant Funded Programs** - College Now, STARR
12,080 NASF	12,770 NASF	**Technology** - Academic Computing, IFAS, IT, Teaching and Learning Center
	400 NASF	**Student and Faculty Activities** - Food and Dining Services, Student Activity
34,480 NASF	35,530 NASF	**Student Services** - Admissions Information Center (AIC), Magner Center for Career Development & Internships, Office of Financial Aid, Health Programs and Immunization Requirements, International Student Services, Personal Counselling, Scholarships, Veterans Affairs
6,060 NASF	4,290 NASF	**Child Care / Early Childhood Center**
900 NASF	800 NASF	**Campus Services** - Facilities Operations and Maintenance
		Corridors, Building Cores, Mechanical
	14,040 NASF	**Available**
		Main Entry



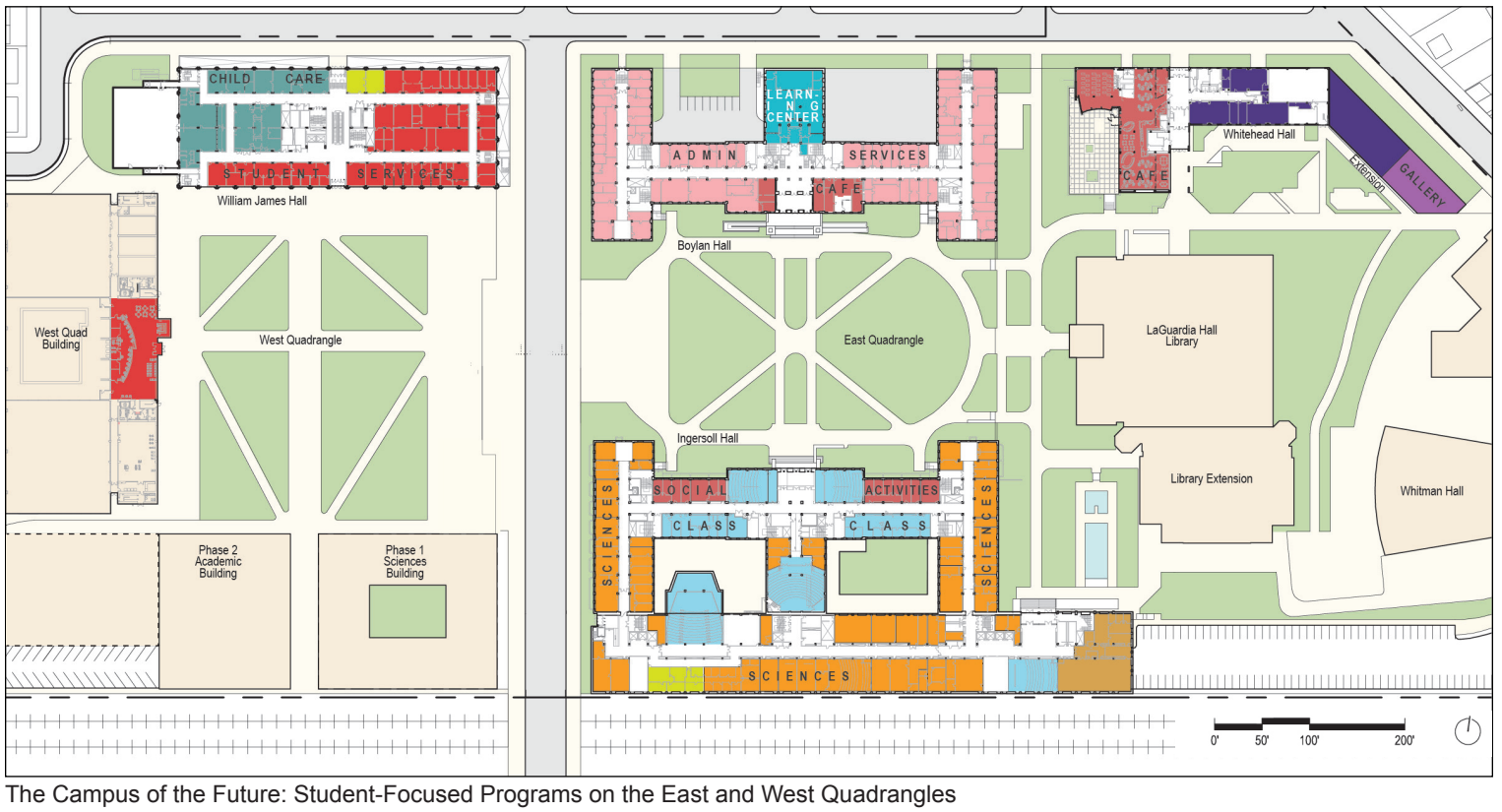
G. Organizational Strategy for Student Services

One of the primary goals of The Plan is to better serve the students of Brooklyn College. This can be achieved in a number of ways, including focusing on increasing the visibility and accessibly of Student Services and by providing more social gathering spaces distributed throughout the campus. The Plan recommends bringing more student life to the heart of the campus, with student-focused programs and social spaces located on entry levels of buildings fronting the East and West Quadrangles. This strategy reinforces life on campus, generating opportunities for students to gather informally in small groups, or study quietly in commodious settings. Although in the future each School will be consolidated in a building or series of buildings that will enhance their image and identity, concurrently The Plan allocates spaces facing the Quadrangles to Student Services, Student and Faculty Activities, and social gathering spaces. More focused School oriented spaces will be located on upper floors of the buildings. As one goes deeper into one's area of study, one also goes deeper into the building itself, aligning the philosophical with the physical.

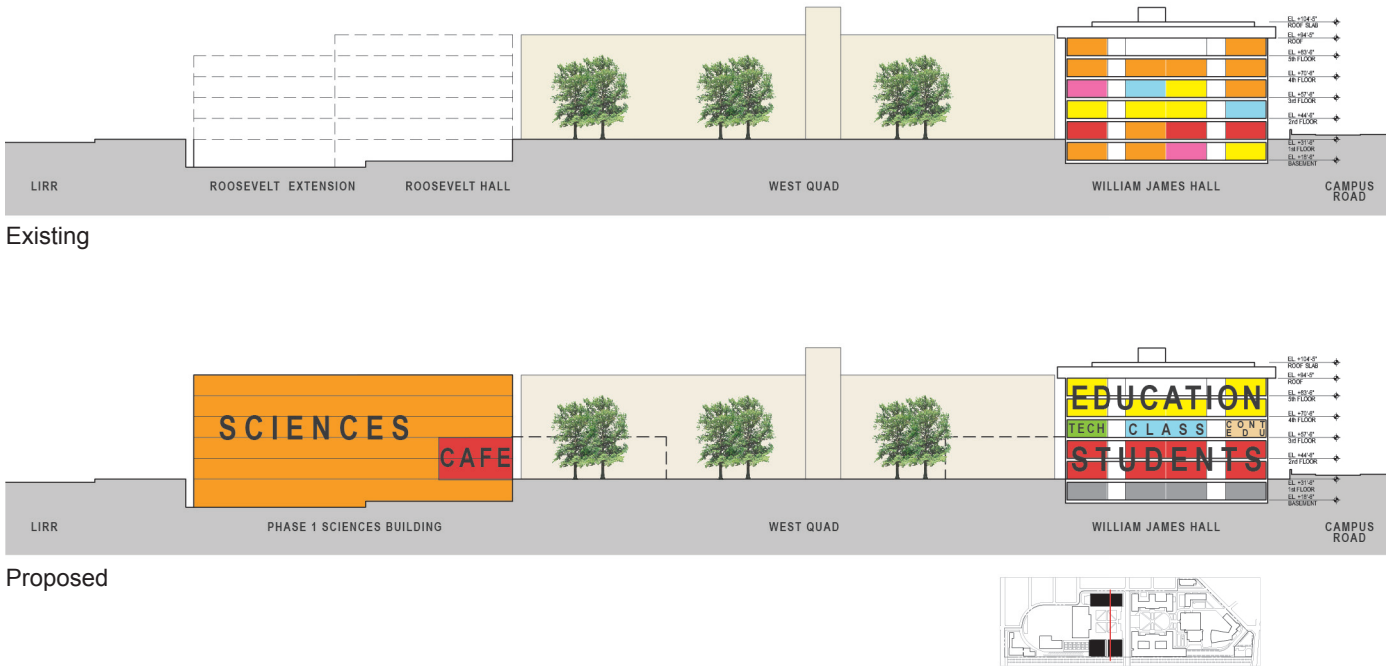
Each building is organized in a similar manner that begins by making their first floors welcoming to students with social spaces, Student Services and student-oriented programs that are immediately visible and easy to find. As students go deeper into the building or up to other floors they will first reach classrooms shared among departments and Schools, and then further into the building, faculty offices and specific School-related functions.

Organizationally, The Plan addresses these distributions in several ways. First, on the West Quadrangle, the recently constructed West Quad Building houses a portion of Student Services, focusing on those services that are transactional in nature. However, the building is not able to accommodate the full range of spaces required for Student Services, particularly those that provide advisory functions. Therefore, The Plan recommends dedicating the first few floors of nearby William James Hall to Student Services, creating a Student Services "hub" with proximity between transactional and advisory functions.

Similarly, on the first floors of Boylan and Ingersoll Halls, The Plan recommends locating Student Activity spaces as well as carving out lounges and social spaces that would face the East Quadrangle. Not only will this reinforce activity on the Quadrangle but also, by creating lounge space with windows to the exterior at the end of the corridors, the long, rather dark hallways of these buildings will be infused with natural daylight, transforming the character and quality of their public circulation areas. Furthermore, this will provide much needed social spaces on campus, encouraging casual student meetings, lounging, studying, and relaxing -- the types of spaces and activities sorely lacking today, and ones that will encourage students to remain on campus between and after classes.



The Campus of the Future: Student-Focused Programs on the East and West Quadrangles



Diagrammatic North-South Section: through William James Hall, the West Quadrangle and Phase 1 Science Building illustrating concept of locating student services and invigorating exterior spaces with ground floor activities.

Diagrammatic North-South Section: through Boylan Hall, the East Quadrangle and Ingersoll Hall / Ingersoll Extension.

H. Building Maintenance and Infrastructure Improvements

In order to support the College's plans for the future as well as realize its commitment to sustainability, campus-wide infrastructure will need to be improved at all levels. While the buildings have been well cared for, are structurally sound, and have had some upgrades, as at most institutions, they suffer from years of deferred maintenance. In the case of Boylan and Ingersoll Halls, these are buildings that date back to the College's original founding and are approaching eighty years of continuous service. Therefore, as the College moves forward with its plans for renovation, expansion and new construction, each project should be used as an opportunity to upgrade a building's infrastructure, as well as provide campus-wide improvements where appropriate. Of particular importance is the replacement of windows with double glazed systems, a program already underway at the College. This will greatly enhance their energy efficiency as well as occupant comfort. In addition, site improvements should be made as necessary, replacing cracked or broken planters, sidewalks, stairs, and ramps or reconstructed completely where the damage is too great.

Routine maintenance recommendations for building exteriors include:

- the removal of plant growth where excessive to avoid deterioration of masonry;
- removal of spalling concrete;
- source the cause of any water penetration at effloresced brick, most likely arising from coping;
- replace damaged brick;
- apply vapor permeable water repellent and

reapply water proofing at window wells;
- apply vapor permeable water resistant coating to extend life of roof frames;
- replace rusting security bars;
- repair cracked concrete slabs, columns, and walls;
- inspect roof tiles and replace where missing;
- remove loose material and repoint.

Common recommendations for maintenance of building interiors include:
- repair missing fireproofing;
- repair or seal cracked concrete slabs, columns, and walls;
- identify source of water staining or pooling and correct immediately if possible.

1. Mechanical

The mechanical systems of many of the buildings on campus require some level of maintenance, upgrade, repair or replacement. In particular, the replacement of the mechanical systems in Boylan Hall and Ingersoll Hall/ Ingersoll Extension are a high priority for the campus, with both buildings in need of central mechanical systems. New systems will improve building operations, occupant comfort and indoor air quality. Existing window AC units and operable windows are currently the only means of ventilation for these buildings. With the exception of a few new direct expansion (DX) systems associated with lab renovation projects in Ingersoll Hall, all of the building's mechanical equipment should be replaced. Most of this equipment was installed during the building's construction back in the 1930's and has never been upgraded. It was surveyed and found unsuitable for reuse. Connecting these buildings to the campus chilled water system to serve existing packaged systems will prove much more energy efficient than the existing DX coils. In addition, in the case of Ingersoll Hall it will allow the existing DX system used for cooling to operate much more efficiently.

The perimeter steam heating in both Boylan and Ingersoll Halls is also in need of upgrade, due to its age and lack of controllability. Replacing the heat exchanger system with a heat exchanger and hot water perimeter system will improve thermal comfort and likely reduce total energy consumption. In Ingersoll Hall, an exceptionally large sub-basement space with abandoned equipment provides an excellent opportunity to serve as an HVAC equipment room in the future. Similarly, the fifth floor mechanical room in Ingersoll Extension is also very large and would certainly be sufficient to house new equipment.

In contrast, systems in LaGuardia Library are up to date, following current practices for energy efficient design and should last for twenty or more years assuming proper maintenance. When upgrades are made, Variable Air Volume (VAV) boxes and secondary ductwork can be modified as necessary to accommodate changes.

Whitehead Hall is served by outdoor air and fan coil unit systems which, while still functional, are nearing the end of their useful life. Since these units are used for cooling only, they are shut off during winter months when perimeter finned tube heaters are then used, hence preventing proper ventilation to spaces during most of the school year. As part of future renovations to Whitehead Hall, ventilation and fan-coil unit systems should be fully replaced due to their age and finite cooling capacity. An intermediate step could be a system upgrade, replacing ventilation units with ones equipped with heating and cooling coils to provide ventilation year-round. The rooftop and basement of the building have adequate space for new HVAC equipment.

For all buildings undergoing facility-wide upgrades to their HVAC systems, a new building-level control system should be installed, compatible with the campus-level building management system. These systems should include direct digital control monitoring of HVAC equipment, demand controlled ventilation and sub-metering of utilities.

In the case of the Chiller Plant, it is recommended that direct digital controls be further implemented to optimize the operation of the campus chilled water and steam systems. This is in addition to the chilled water upgrade completed in 2004 that provided water side economizer capabilities allowing for automatic switchover between free cooling and electric chiller operation based on outdoor temperatures. Providing temperature sensors at the incoming chilled water and steam lines in all buildings served by the campus loop is also recommended. The information reports back to the Central Plant and is used to modulate flow control valves. Proper flow modulation will ensure that buildings on different schedules receive the utilities they need at all times while also allowing buildings to reduce their consumption during setback periods. This will be particularly useful for buildings as they're renovated and equipped with new variable volume systems, enabling maximum energy efficiency at both the building and Central Plant level.

Finally, the existing mechanical system in the "The Knuckle" does not currently provide guaranteed ventilation, and therefore replacement is required. A new system consisting of either a VAV with reheat or fan coil units with dedicated outside air units will provide the proper code-required quantities of ventilated air. The existing space allocated for ductwork in the building would be more conducive to a dedicated outside air system, while a VAV system would provide more flexibility in terms of thermal control and acoustics. Both systems should be further evaluated. In addition, the window AC units in the building should be replaced with a chilled water cooling system, which will be more efficient. Providing both new cooling and ventilation systems for this building are a high priority. Additionally, while replacement of the perimeter heating system is not immediately necessary, an eventual replacement that serves the hot water system via a hot water exchanger rather than steam is also recommended.

2. Electrical

Similar to the campus wide mechanical systems that need updating or replacement, much of the College's electrical service is also obsolete and requires significant investment as buildings are renovated or expanded. For instance, in Boylan Hall the numerous taps onto the existing electrical service in the building indicate that the original service is at its limit. The electric service room is crowded and the ability to expand service in this area is unlikely. Providing the east wing of the building with a new secondary electric service will reduce the congestion of the existing electric service in the west wing, thereby improving overall service to the building. The existing electrical service in Ingersoll Hall/Ingersoll Extension is also obsolete, as is the existing fire alarm. While the electric distribution itself is in fair condition, both the service and the fire alarm system should be replaced.

Whitehead Hall suffers from much the same inadequacies as Boylan and Ingersoll Halls. The building's main electric service equipment is obsolete and should be replaced. Similarly, the existing electrical room area is not adequate and a new location should be considered. In William James Hall the main circuit breakers are obsolete, the motor control centers are past their expected lifetime and both should be replaced. The remote electric closets are small and equipment spacing does not meet the current National Electric Code clearances. In addition, the scope of programmatic changes proposed for both Whitehead and William James Halls may require installation of a generator in both, providing an alternate source of power.

Much like the other buildings on campus, the electrical service switchgear in the Heating Plant dates back to the building's original construction and should be replaced. Because of the particular environmental conditions in the boiler plant, a specialized enclosure for the electric distribution system is warranted. The existing fire alarm system in the Chiller Plant should be extended to the Heating Plant to bring the latter up to code. The exposed non-compliant panels should be also brought up to code and addressed as soon as possible.

Unlike the Heating Plant, new electric equipment was recently installed in the Chiller Plant, sufficient to meet the power requirements of the building. However, additional improvements should be considered, including installing surge protection throughout the electric distribution system, as well as replacing motors with over 50 horsepower with 18 pulse drives.

3. Plumbing

While the water system serving the campus is itself adequate, some of the systems within the buildings should be upgraded or modified. One of the major recommendations regarding domestic water services at the College is the installation of backflow preventers, remote reading devices, and transmitters on water meters in Boylan Hall, Ingersoll Hall/Ingersoll Extension, LaGuardia Library, Whitehead Hall, William James Hall, and Whitman Hall / "The Knuckle." Floor drains located near each backflow preventer and with connections to existing drainage should be provided in accordance with New York City DEP requirements. Any valves and fittings that are in poor condition should be replaced, and all water piping, backflow preventers, meters, valves, and fittings should be insulated. In addition, existing domestic booster pumps with cushion tanks should be replaced with variable frequency drives (motor) pump systems. Storage type domestic hot water heaters should be replaced, and hot water circulation be automatically controlled by aquastats.

In keeping with the College's commitment to sustainability, as buildings are renovated, plumbing fixtures including faucets, urinals, and water closets in all restroom facilities should be replaced with automatically operated ultra-low-water consumption type fixtures. A storm water harvesting system is also recommended to reduce potable water usage in buildings. This system consists of two external underground reservoirs that collect water from roofs; a tank located in the basement then treats and disinfects it; and finally pumps and piping distribute it to flush valves in toilet rooms within the building. Under this scenario, existing storm leaders in buildings will be disconnected from the buildings' combined sewer and instead connected to underground reservoirs.

Specific building improvements include Ingersoll Hall, where the non-operable domestic hot water heater should be repaired or replaced; Ingersoll Extension, where the pits for the acid neutralization tank and sewage ejector should be fixed in order to alleviate ground water intrusion and in some cases flooding, replacing the metal covers for each; William James Hall, where one pump unit in the domestic triplex booster pump system needs replacement as well as replacing all of the building's hot water heaters; and Whitman Hall / "The Knuckle," where the vent for the sewage ejector should be connected to an existing sanitary vent system. In addition, the condition of the heat exchangers for domestic hot water usage should be further evaluated to determine their effectiveness and longevity.

4. Fire Protection

Fire protection upgrades, including the installation of an automatic wet sprinkler system, are recommended for most buildings on campus including Boylan Hall, Ingersoll Hall/Ingersoll Extension, Whitehead Hall, William James Hall, and Whitman Hall / "The Knuckle," bringing them into compliance with the 2008 New York City Building Code. Existing standpipe systems in these buildings can be used as the water supply for their sprinkler systems, with required floor control valve assemblies located in staircases and connected to the standpipe risers. In addition, booster pumps should be provided for proper sprinkler operation. The fire protection systems should be monitored by an approved supervising station with all fire department connections to remain.

In Ingersoll Extension, the required pressure for the combined fire standpipe and sprinkler system should be provided by fire booster pumps, and the reconnection of existing fire services from city main to campus loop. In LaGuardia Library, the existing fire pump should be evaluated for capacity and pressure in relation to recommended replacement of campus fire pump located in the Heating Plant. In Whitehead Hall, the fire service should be equipped with an approved New York City backflow preventer. In the Heating Plant, the existing 500 gallons per minute (gpm) rated fire pumps should be replaced with a 1250 gpm pump to be in compliance with the current 2008 New York City Building Code for water supply serving multi risers standpipe systems in fully sprinkled buildings. In Whitman Hall / "The Knuckle," a sprinkler booster pump will be provided in order to maintain the required pressure to the most remote sprinkler locations.

In the Heating Plant, the water meter assembly should be modified to include an appropriate New York City remote reader and transmitter. In addition, the complete installation and wiring of the domestic booster pump is also recommended. A quenching water line with a temperature sensor in the pit should be provided for cooling the boilers down.

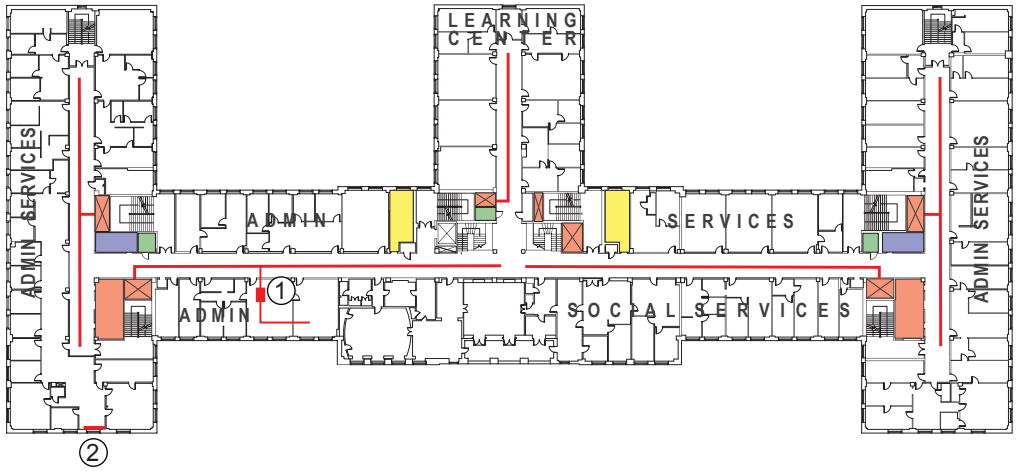
For more detail and for recommendations, see *Appendix Volume 3: Building System Assessment*.

I. Impact of Infrastructure Improvements on Space Utilization

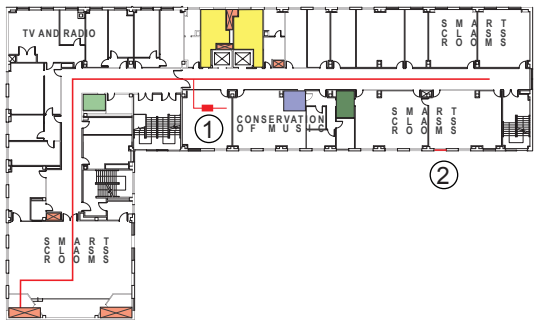
In order to better understand the potential space implications of various recommended infrastructure improvements, the following diagrams were prepared, reflecting mechanical and electrical upgrades proposed for typical floors in Boylan Hall, Ingersoll Hall/Ingersoll Extension, Whitehead Hall and William James Hall. The diagrams locate existing shafts, electrical closets, and restrooms to remain. They also indicate additional space that is likely to be needed for Mechanical Equipment Rooms (MER), Information Technology (IT) closets, and main supply and return duct branches for the proposed HVAC system when introduced into these older buildings. It is assumed that ducting for each of the floors will be located in corridor ceilings, requiring their demolition and replacement as part of the renovation efforts. Furthermore, the diagrams illustrate typical locations of VAV boxes with reheat to supply branches over rooms, and perimeter finned tube heating. In Boylan Hall and Ingersoll Hall/Ingersoll Extension it is anticipated that between 40-60 VAV boxes will be required per floor, in Whitehead Hall about 15-20 VAV boxes per floor, and in William James Hall about 30-50 VAV boxes per floor.

Boylan Hall currently has approximately 5,000 nasf of mechanical equipment rooms on the first through fifth floors. Accommodating a new HVAC system in the building will require an additional 20,000 nasf of space; however, 10,000 nasf of this can be located in the sub-basement, with the remaining 10,000 nasf located on the roof. The same would apply for Ingersoll Hall/Ingersoll Extension. To serve Whitehead Hall,1,500 additional nasf will be required, adding to the existing 4,000 nasf of mechanical equipment rooms located in the building's basement. The 1,500 nasf of new space can be located on the fifth floor. William James Hall currently has 9,000 nasf of MER located on the fifth floor and is likely not to require any additional space to accommodate a new HVAC system.

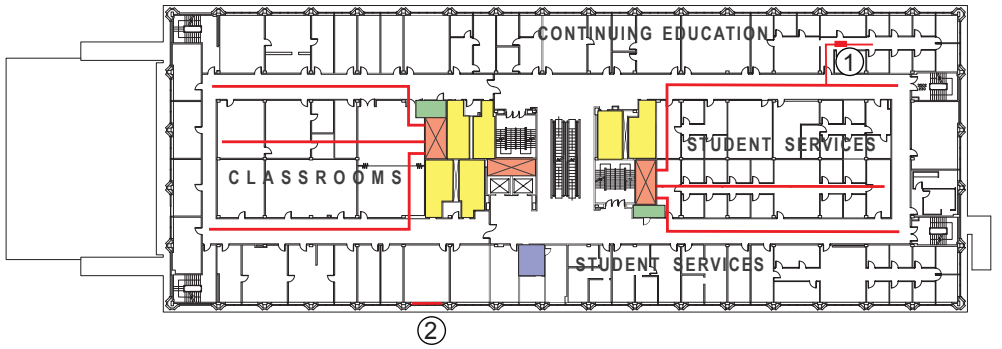
Infrastructure Diagrams



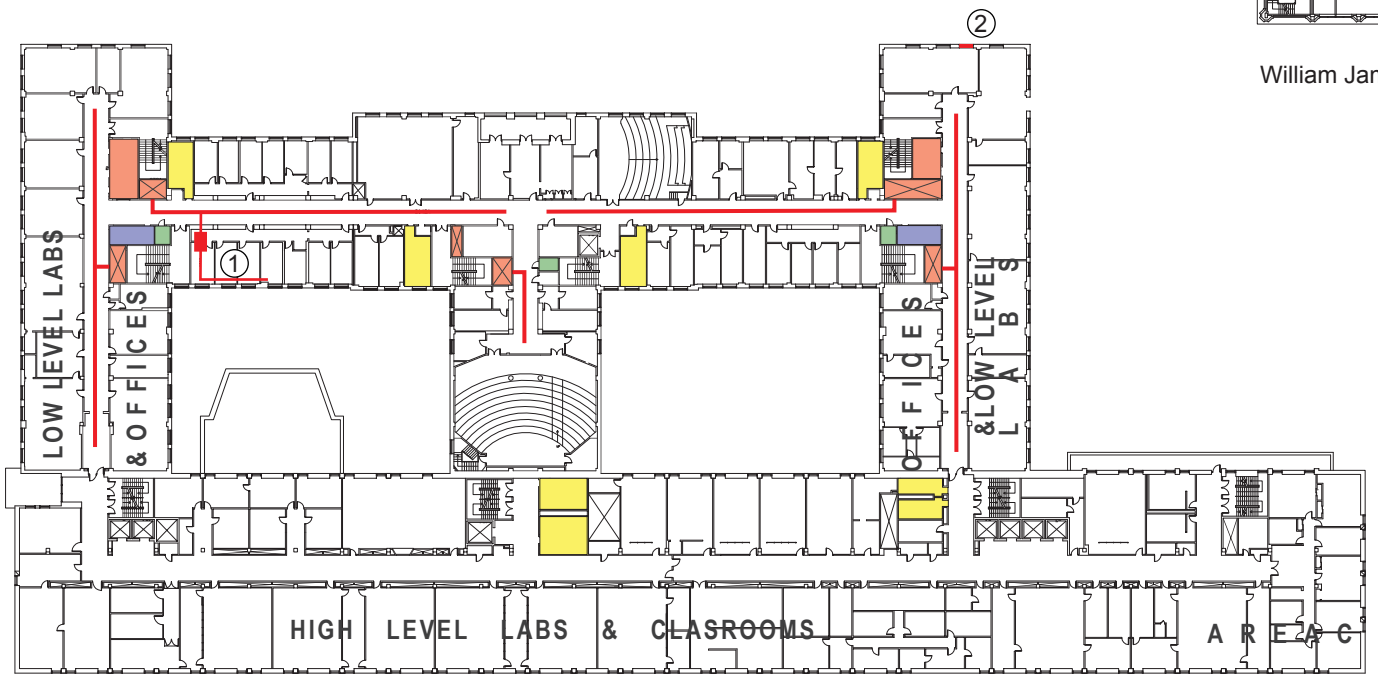
Boylan Hall



Whitehead Hall



William James Hall



Ingersoll Hall / Ingersoll Extension

- Main Supply and Return Branches in Corridor (typical)
- Existing Shaft to Remain
- Additional MER Space
- Existing Electrical Closet to Remain
- New Electrical Closet
- New IT Closet
- Bathrooms

(1) VAV boxes with reheat to supply branches over rooms
(2) Perimeter finned tube heating (1 / window)

In addition to space that will be required for mechanical equipment rooms, are areas necessary to accommodate shafts running vertically throughout the buildings. These shafts will provide space for future distribution of mechanical, electrical and plumbing services. An evaluation of existing structures indicated that shaft space is likely to be adequate in Boylan Hall, Ingersoll Hall/Ingersoll Extension and William James Hall. The only building lacking a central shaft is Whitehead Hall, since it was not originally designed with a central airside system. Hence, the two existing shafts from the basement located at the southern end of the building, while adequately located, should be doubled in area to accommodate the proposed HVAC expansion.

Relative to new electrical and IT provisions, Boylan and Ingersoll Halls each have three existing electrical closets per floor that should remain with two additional IT closets of approximately 150 nasf each provided per floor. These should be located adjacent to or near the electrical closets. Similarly, Whitehead Hall has two existing electrical closets on each floor that should remain with one new IT closet of approximately 100 nasf recommended to be added to each floor. These should be centrally located in the building. Finally, William James Hall has two existing electrical closets of adequate size and will require one new IT closet of about 140 nasf, also to be located centrally in the building.

J. Projects Requiring Further Study

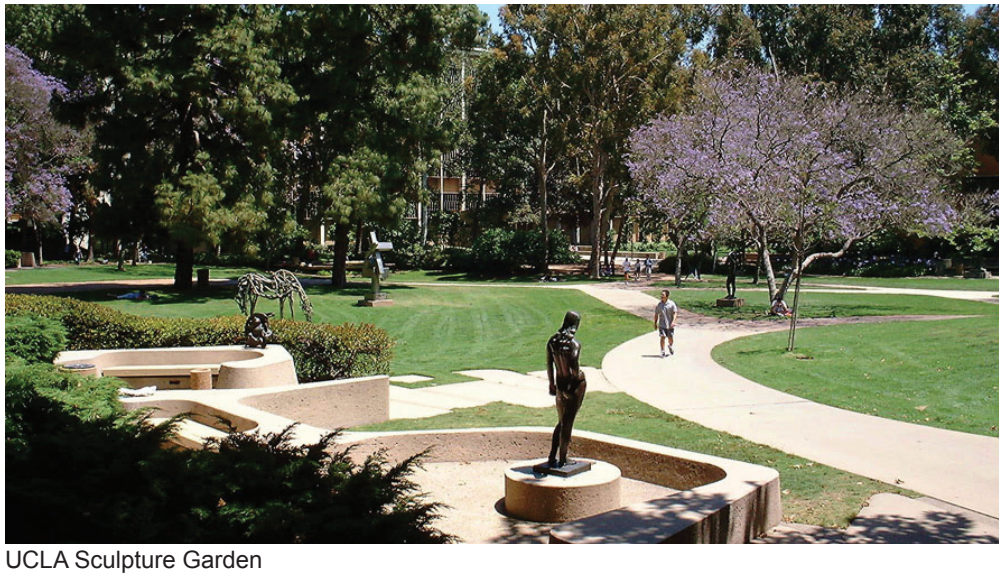
Aside from the building upgrades, renovations, expansions and relocations already addressed in the document, The Plan recommends additional projects that will require further design study, should the College be interested and should funding become available. They vary in scale and scope from major façade replacements to modest landscape enhancements.

1. Boylan Hall

The Brooklyn College cafeteria, the primary food service on campus, is located in the basement of Boylan Hall, out of sight, hidden from campus life with only minimal signage alluding to its existence. One way to enhance the visibility of this service, and to showcase it from the East Quadrangle, is to provide a modest expansion on the first floor adjacent to the front entry of Boylan Hall. This would visually and physically connect it to the primary space below through an open, inviting staircase (recognizing that handicap accessibility would need to be addressed.) This first floor space would not only enhance the dining experience for students and likely increase traffic flow, but with its transparent façade it would also energize the East Quadrangle by bringing a highly active space to the first floor of the building, overlooking the green. Furthermore, the cafeteria in its current location -- submerged a half story below grade -- receives very little natural daylight. Opening up the area fronting Boylan Hall to the south and creating two outdoor seating patios, combined with the proposed dining space on the first floor, will bring much desired daylighting to the cafeteria overall, as well as create another popular gathering space on campus. This would be similar to Library Café, further activating the Quadrangle while bringing visibility to the spaces below.

2. William James Hall

There is currently a project underway to reconstruct portions of the southern façade of William James Hall, damaged when the Plaza Building was demolished in 2005. This project, however, is limited in scope to re-opening the building entry on the campus side, providing a new lounge space on the second floor, and repairing only those portions of the façade that were damaged, leaving the remainder of the building's exterior as is. The Plan recommends that in the future, further façade renovation be considered in concert with interior renovations proposed for the building. Not only would an extensive façade renovation improve the building's energy efficiency through the introduction of new windows and exterior materials, it would also give it a new look, more in keeping with the recently-constructed West Quad Building and what will soon be the Phase 1 Science Building. This would bring a sense of architectural coherence to this end of the campus which is lacking today. In addition, in keeping with the recommendation to partially enclose the West Quadrangle to mitigate against the traffic and noise of Bedford Avenue, The Plan also recommends that a three-story extension be constructed at the southeast edge of William James Hall. This will both add square footage to



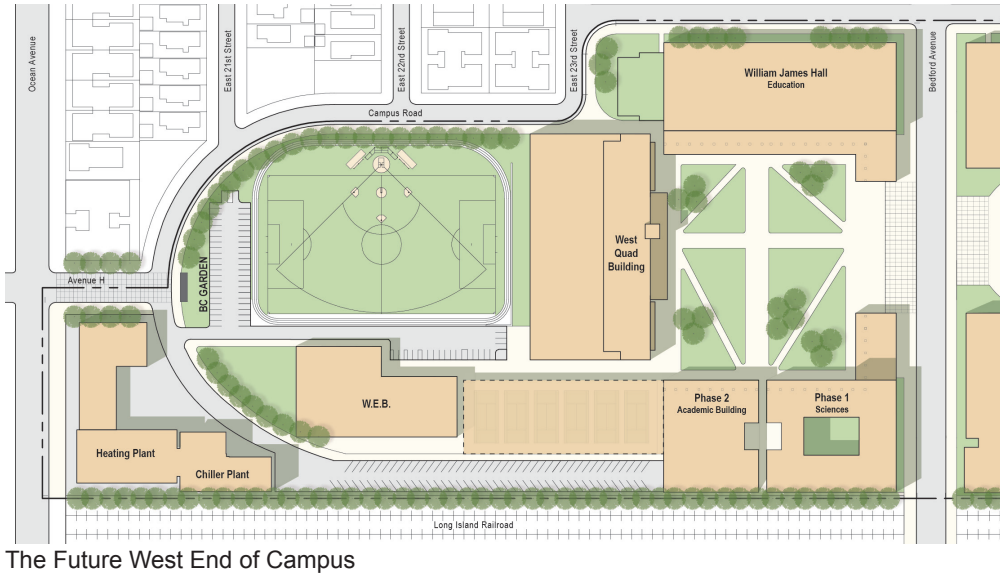
UCLA Sculpture Garden

the building that can be used for classrooms and instructional space and also create an “arm” to embrace the Quadrangle, filled in part with vibrant social spaces that bring vitality to this area of the campus both day and night.

K. Landscape Improvements

In addition to the landscape/open space improvements outlined elsewhere in the report, The Plan also recommends a number of campus-wide site enhancements that will contribute to the already strong and well received collegiate environment established at Brooklyn College. These enhancements include adding more site furniture throughout the campus providing places for students to sit, read, study, etc.; repairing pavement, sidewalks and steps where damaged; providing increased site lighting for safety and to enhance the ambiance during evening hours; and improving campus-wide signage and wayfinding, both on the exterior as well as the interior of buildings. Furthermore, the landscape in the West Quadrangle can benefit significantly from increased tree and shrub plantings including its entries, creating a major open space more in keeping with the East Quadrangle.

One key element that would tie the entire campus together visually is the incorporation of sculpture and art throughout the interior and exterior spaces of the College, turning the landscape spaces into a visually compelling sculpture garden throughout. The first of these efforts will occur with the completion of the Leonard and Claire Tow Center for the Performing Arts, which has commissioned a well known artist to create an art piece within the landscape courtyard framed by the new PAC and existing Whitman Hall. This will be a first step in creating an “arts quadrangle” at the east end of the campus. Such an undertaking will showcase the talents of the College’s visual arts programs to the entire community, bringing the arts literally to the forefront of the Brooklyn College experience. Well-known examples of collegiate sculpture gardens are found at campuses as geographically diverse as the University of California Los Angeles (UCLA) and SUNY Fredonia in upstate New York, to name but two. UCLA’s Franklin D. Murphy Sculpture Garden spans 5 acres at the north-east end of the 410 acre campus, and features over 70 art objects created by some of this country’s most renowned sculptors. It is not only a noteworthy outdoor space on the UCLA campus and an unique experience for its students, but is also popular for the community at large, attracting visitors on a regular basis. SUNY Fredonia, on the other hand, has transformed its entire campus into a sculpture garden, giving the campus and the community opportunities to view the latest in contemporary sculpture while creating an appreciation of art in public spaces. These examples can provide inspiration for a similar undertaking at Brooklyn College.



The Future West End of Campus

L. Sustainable Strategies

In keeping with Brooklyn College’s commitment to sustainability, The Plan recommends a number of initiatives be used in conjunction with the “Campus Energy Assessment,” as it embarks upon future capital improvements. These initiatives range from water harvesting to solar energy and provide a variety of strategies to advance the College’s sustainability efforts, while also demonstrating to students a stewardship of the land and its resources.

1. Water

Conserving water and reducing the load of rainwater on the city’s storm water system is one impactful means of applying sustainable practices on campus. This can be achieved by recycling water in several ways for reuse in applications such as irrigation.

1.A. Living Machines

One method of water conservation is to install “Living Machines” implemented in association with new construction such as the Phase 1 Science Building and the Phase 2 Academic Building. Living Machines are natural treatment systems that treat greywater -- wastewater generated from activities such as dishwashing, sinks, laundry, and showering. This odorless system uses plants and a digestion tank to turn wastewater into clean water, essentially working

like a filtration garden. Ideal locations for Living Machines are the Phase 1 Science Building courtyard, the Brooklyn College Garden, and the poor drainage area within the West Quadrangle. This creates a great complement to the existing Lily Pond on the east end of campus.

1.B. Porous Pavement

Improving drainage throughout the campus can occur by creating new porous sidewalks and/or replacing existing pavement with porous materials, particularly in sidewalks where applicable, such as around the Brooklyn College Garden, the new softball field, and the West Quadrangle. This will also reduce ice build-up in the winter and will not require salting, which will yield cost savings for the College.

1.C. Rainwater Harvesting

Rainwater harvesting on campus can be accomplished by installing tanks in key locations, such as outside the athletic fields and in the West Quadrangle. This includes installing porous pavement at the tennis courts to collect runoff water below into tanks, and by collecting runoff from blue and green roofs (described later in this section). Blue roofs can be incorporated on existing buildings such as William James Hall and a portion of the West Quad Building, while green roofs can be incorporated into the new construction of the Phase 1 Science Building and the Phase 2 Academic Building.

1.D. Blue Roofs

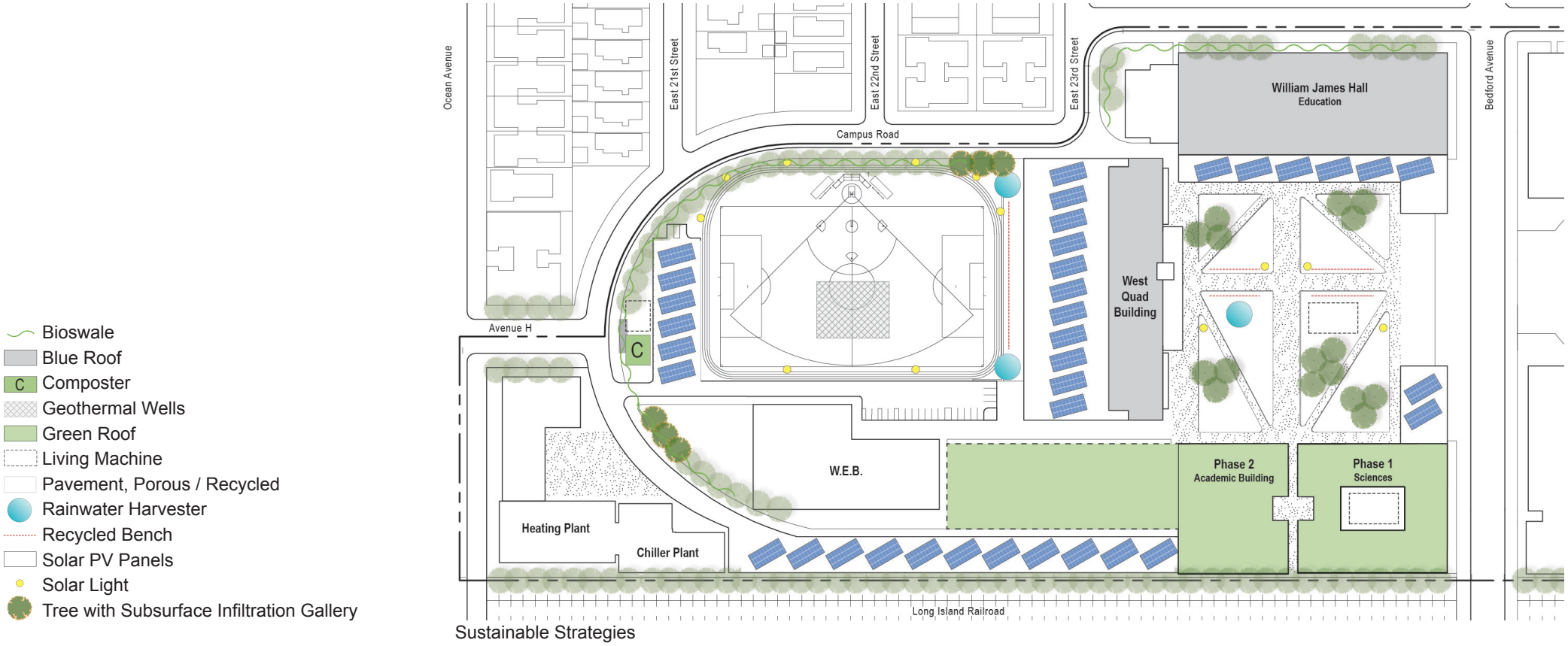
These roofs are designed specifically to temporarily store water, typically rainfall, to mitigate runoff impacts. The water can then be used for irrigation or cooling.

1.E. Bioswales

These are composed of grassed strips that can be added along the edge of Campus Road on the perimeter of the west campus to catch water road runoff and slow the flow velocity while removing some pollutants. This system reduces the loading on the stormwater's piped gray water infrastructure.

1.F. Subsurface Infiltration Galleries

Another form of stormwater quantity management can come in the form of Subsurface Infiltration Galleries around the base of trees. Existing tree pits can be expanded to incorporate these, or when new trees are planted, the subsurface infiltration galleries can be installed at the same time.



Sustainable Strategies

2. Landscape

Landscaping brings an intangible value to the campus and is a hallmark of Brooklyn College. However, it can be made even more effective in terms of improving the environment by applying a few simple and "smart" systems. These could include a composter located at the garden, composting certain food and yard waste generated by food service and other operations at the College, thereby limiting the amount of waste that needs to be disposed of. The composter generates fertilizer which can then be used on campus grounds to improve landscape growth. Roof gardens and green roofs can also play a role in sustainability in a variety of ways -- through stormwater management (absorbing water), energy consumption reduction (retaining heat during the winter and diminishing heat build up during the summer), and educational experiences where students can participate in growing food, say, as part of the Nutrition program. These types of roofs also have an added aesthetic value by providing a visually pleasing surface when viewed from above or can provide gathering spaces for building occupants.

3. Recycling and Reusing

Recycling materials reduces the environmental impacts in a number of ways, beginning with the use and fabrication of raw materials to the reduction in the amount of material that ends up in landfills. While the College already participates in a recycling program for day-to-day waste such as cans, bottles and papers, there are also a number of construction-related recycling measures that can be implemented as buildings are constructed or renovated under the LEED program. For instance, concrete can easily be recycled and reused in applications such as sidewalks and buildings. Bricks can also at times be recycled depending on their content. Old doors from the renovation of buildings can be reused in applications such as benches or picnic tables. If new outdoor furniture is needed, an alternative to standard wood products is mixed rubber / wood sources, since these materials are rot-resistant and do not require staining. Wherever possible, the College should donate any unused salvaged material that is suitable for reuse such as concrete, steel, glass, aluminum, wood etc.

4. Energy

The conscious use of energy is the number one means to reduce energy consumption as well as operational costs. This can be accomplished either by passive or active means, both of which have been outlined below.

4.A. Green Roofs

Green roofs are lightweight, low maintenance, reduce heat gain / heat loss, and in turn reduce energy consumption. These can be installed in new

Green Roof at Art Center College of Design Campus in Downtown Pasadena, California.
Design by Daly Genik. Photo by Ach/Land

Bioswale Example

buildings such as the Campus Services / Ingersoll Infill Project, the Phase 1 Science Building, and the Phase 2 Academic Building.

4.B. Closed Loop Geothermal Well Field

This is a system of approximately 250 wells placed at a depth of about 400 feet and can be installed under the athletic fields, as they occupy a large area. The system uses the earth's natural heat to generate 500 tons of cooling that can be used for either new buildings, or can serve as pre-cool for the Chiller Plant. This system is being implemented at many of the SUNY campuses. However, before considering, the College should likely conduct a cost/benefit analysis of the system to determine the "payback" period, etc.

4.C. Photovoltaic (PV) Panels

These panels can be installed over parking lots to both harness solar energy as well as provide shade, reducing heat build up. They can also be placed on the roofs of new construction, as well as on the roof of the West Quad Building, which is understood to have a substructure that can support the weight of the system. PV panels harness the solar energy which then can be used to power call boxes, exterior lights throughout the West Quadrangle, the athletic field and tennis court lights, as well as contribute to power supply to the buildings.

Photovoltaic Panels for Shade: Parking Lot at Springs Preserve, Nevada

Whitehead Garden

V. IMPLEMENTATION

V. IMPLEMENTATION

A. Introduction

The Plan is a long-term guide for decision making as the College increases enrollment and continues to provide quality education for its students. It is the beginning of a process, establishing a framework for making incremental improvements. The Plan does not dictate change or when and how it happens, nor does it describe specific details of where individual offices, programs, or activities should be located. Instead, it outlines overall recommendations and their implications, allowing the College to respond to opportunities as they arise. This section highlights the construction costs associated with the various projects recommended in The Plan, along with a phasing strategy which illustrates incremental improvements based on the College's priorities at this time. If priorities change, the phasing will likely be modified over what's presented here.

As the College continues to expand its facilities, it will need to address the issue of parking. While the campus is well served by mass transit, a somewhat significant number of students arrive by private vehicles. Lacking sufficient, affordable parking limits the attractiveness of the College to students who live elsewhere in the City or Long Island. This may become increasingly important relative to the School of Business, where there is often a higher percentage of part-time and evening students.

B. Construction Cost Estimate

The cost estimates prepared in association with The Plan have been reviewed by CUNY and The Master Plan Team. While significant in magnitude, the estimates are typical of projects of this size and scope. It should be noted that the costs are presented in today's dollars (Spring 2011) and are for construction only. Included in the overall cost estimate are contingencies for design (15%), bid (5%), and construction (10%). It is anticipated that the 15% design contingency will be used as part of the design process to account for programmatic changes that may evolve between The Plan and an actual building project. In addition, renovation costs include a phasing allowance of 5%, which accounts for the buildings' continued operation and use while certain floors are upgraded.

Cost Estimate for Schedule of Proposed Projects

	Projects	Total Base Cost Estimate	Cost Per Square Foot
Buildings			
1	**Boylan Hall**		
	1.1 Base Building Renovation & Infrastructure Upgrade	$95,580,000	$296
	1.2 Outdoor Patio (Alternate)	$183,000	
	1.3 Addition of New Stair (Alternate)	$48,000	
2	**Ingersoll Hall**		
	2.1 Base Building Renovation & Infrastructure Upgrade	$92,510,000	$298
	2.2.a East Courtyard Infill	$1,998,000	
	2.2.b Green Roof (Alternate)	$207,000	
3	**Ingersoll Hall Extension ***		
	Base Building Renovation & Infrastructure Upgrade	$98,017,000	$334
4	**Whitehead Hall**		
	Base Building Renovation & Infrastructure Upgrade	$25,976,000	$237
5	**Whitehead Hall Extension**		
	New Construction	$26,736,000	$583
6	**Whitman Hall / "The Knuckle"**		
	Base Building Renovation & Infrastructure Upgrade	$15,585,000	$330
7	**William James Hall**		
	7.1 Base Building Renovation & Infrastructure Upgrade	$88,769,000	$309
	7.2 Complete Façade Upgrade (Alternate)	$12,544,000	
	7.3 New Addition with Façade Upgrade (Alternate)	$36,320,000	
8	**Phase 2 Academic Building**		
	New Construction	$91,200,000	$608
9	**Chiller Plant**		
	Base Building Renovation & Infrastructure Upgrade	$399,000	$19
10	**Heating Plant**		
	Base Building Renovation & Infrastructure Upgrade	$834,000	$32
11	**Central Services Expansion**		
	New Construction	$21,716,000	$464
Landscape Improvements			
A	**West Quadrangle Landscape Improvements ****		
	A.1 Landscape / Site	$3,082,000	
	A.2 New Green (Adjacent to Phase 1 Sciences Building)	$141,000	
B	**Ocean Avenue Entrance**		
	Repaving asphalt with concrete pavers, street trees cast iron fencing and gate upgrade, lighting, Brooklyn College sign.	$470,000	
C	**Campus-Wide Repair**		
	General provisions for repair & upgrade of existing landscape, pavement, sidewalks, lighting, & site furniture.	$2,632,000	
Civil & Site Sustainability			
A	Living Machine	$1,363,000	
B	Porous pavement	$1,932,000	
C	Recycled or reused concrete -- included with item B		
D	Composter	$64,000	
E	Recycle old doors -- included with building demolition cost		
F	Solar power photovoltaic panels	$1,848,000	
G	Roof gardens	$1,350,000	
H	Rainwater harvesting tanks -- included with item A		
I	Closed loop geothermal well field	$6,490,000	
J	Subsurface infiltration galleries	$18,000	
K	Bioswales	$48,000	

* Cost estimate for Ingersoll Extension incorporates specific projects proposed by Mitchell Giurgola Architects. See *Appendix Volume 6: Cost Estimate* for details.

** The West Quadrangle Landscape Improvement costs will be carried with the Phase 1 Science Building project.

Infrastructure upgrades include: mechanical, electrical, plumbing, fire protection, localized structural and exterior envelope improvements, localized interiors, testing, balancing, and commissioning. It's recommended, given the rather stagnant economy and lack of current large-scale construction projects, that a 4% annual escalation to the mid-point of construction be applied to each project to get a full understanding of the construction costs at the time of implementation. However, it should also be noted that should the economy change, the escalation factor may increase, as it has been as high as 7-10% annually in the past.

Excluded from the estimate are: soft costs, permits, fees, fixtures, furnishings and equipment, moving costs, etc. Also excluded are costs for replacement of vertical transportation in existing buildings, underground storm and sanitary piping, and hazardous material removal and abatement. It's recommended that when renovation projects are undertaken, a complete asbestos survey be conducted of each area to be renovated, providing the College with a better understanding of existing building conditions. The asbestos survey and removal will be an added cost, pending scope and locations of materials.

The Cost Estimate for Schedule of Proposed Projects summarizes the cost for constructing/renovating the projects outlined in The Plan. For details see *Appendix 6: Cost Estimate*.

Aside from the above cost estimate addressing recommendations of The Plan, CUNY is also currently carrying the costs of two projects in the capital request: the Phase 1 Science Building, and the Boiler Replacement Project described below per the CUNY 5-Year Capital Request FY 2011-12.

1. Phase 1 Science Building
Project Description:
The College's science facilities are currently located in Ingersoll Hall, one of the original buildings at Brooklyn College, built in 1934, and Ingersoll Hall Extension, added in 1972. Instruction and research facilities in these buildings are functionally obsolete, particularly for programs at the collegiate level. In order to provide new facilities for sciences, a feasibility study was conducted by a consultant for CUNY/Brooklyn College to determine if Roosevelt Hall (another of the College's original buildings) and its Extension could be appropriately retrofitted for the sciences, as a large portion of the building is now vacant as a result of the recently completed West Quad Building. The study found that to do so would be more costly than to demolish these buildings and construct a new facility on the existing site of Roosevelt Hall. Therefore, to meet the needs of the School of Natural and Behavioral Sciences, Roosevelt Hall/Roosevelt Extension will be demolished and a new 180,000 gsf science facility constructed in its place. In addition, Ingersoll Hall/Ingersoll Extension will be renovated in the future in order to meet the additional needs of the sciences, particularly research and laboratory functions. The Phase 1 Science building will house introductory instructional space, classrooms, a computer laboratory, a café and support spaces. The new facility will support the College's academic goal of transitioning to an interdisciplinary teaching model. This project is currently in schematic design.

Anticipated Completion: Fall 2016
Estimated Total Project Cost: $350,367,000

2. Boiler Replacement Project
Project Description:
The Boiler Replacement project will replace four fire-tube boilers with three water-tube, high-pressure steam boilers in the Central Plant building. The required ancillary equipment such as a new de-aerator, condensate storage tanks and boiler feed pumps will also be replaced. This equipment is past its useful life and is no longer dependable. While the systems have been properly maintained, normal wear and tear have occurred, putting a strain on them. In addition, they are relatively inefficient from an energy perspective. These systems were considered industry standard when installed but should now be upgraded for increased safety, utilization, efficiency and environmental reasons. Critical maintenance funds are being applied toward the design of this project.

Anticipated Completion: January 2014
Estimated Total Project Cost: $20,950,000

C. Phasing Considerations

The College is currently undergoing several projects that will be the launching point for improvements outlined in The Plan. In particular will be the realization of the Phase 1 Science Building which will free up space in existing Ingersoll Hall/Ingersoll Extension. Realizing that implementation of The Plan cannot happen all at once, both for financial reasons but also because of the significant disruption it would have on the campus and the ability to offer programs, a preliminary phasing plan has been developed. The Plan is based in part on the current priorities of the College but also on logistical considerations that require certain improvements to happen in order for others to follow. The overall goal is to minimize disruption to ongoing campus activities as well as to its occupants by diminishing the number of multiple moves required such that each School, department, office or support program ideally moves once, to its final location.

Phase 1. School of Natural and Behavioral Sciences

1.A. Campus Services at Ingersoll Complex:
- Construct new infill building in the east courtyard of Ingersoll Complex;
- Relocate Campus Services from Roosevelt Hall/ Roosevelt Extension to Ingersoll Infill.

1.B. Phase 1 Science Building:
- Demolish Roosevelt Hall/ Roosevelt Extension;
- Construct Phase 1 Science Building;
- Landscape adjacent green space and West Quadrangle.

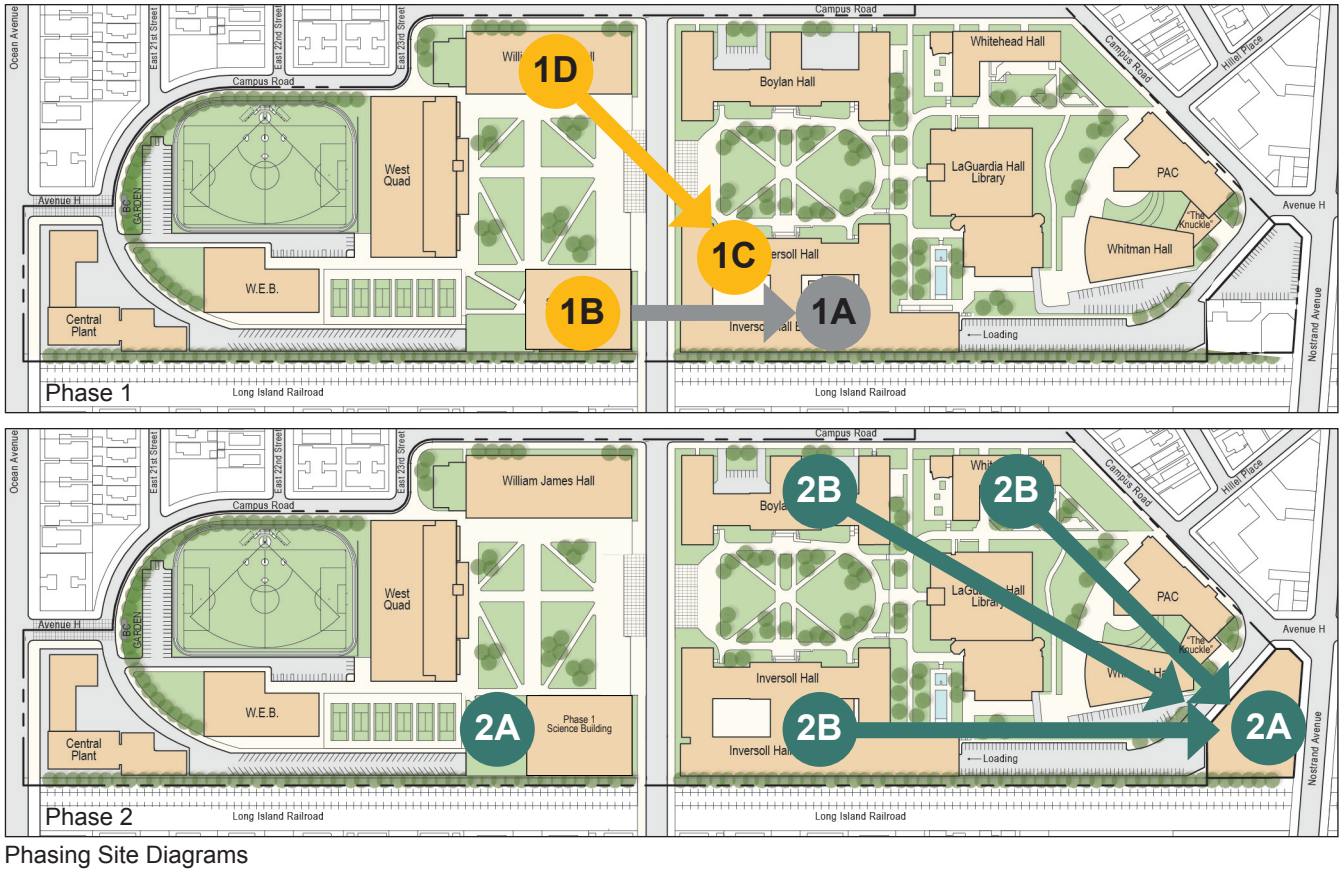
1.C. Renovate Ingersoll Hall/Ingersoll Extension:
- Relocate certain science activities to Phase 1 Science Building, vacating space in Ingersoll Hall/Ingersoll Extension;
- Renovate Ingersoll Hall/Ingersoll Extension.

1.D. Relocate Psychology from William James hall to Ingersoll Hall/Ingersoll Extension.

Phase 2. School of Business

2.A. New School of Business Building:
- Construct new temporary parking lot on site of the proposed Phase 2 Academic Building to replace parking on Nostrand Avenue site (if required);
- Construct new School of Business mixed-use building, potentially with parking on site or with agreement with Target across street. (School of Business likely to be part of a mixed-use public/private development project.)

2.B. Relocation of Program Spaces:
- Relocate Economics from Whitehead Hall;
- Relocate bookstore from Boylan Hall;
- Consider relocating food service from Boylan Hall;
- Relocate Office of Advancement and Office Alumni Affairs from Ingersoll Hall;
- Relocate Dean of the School of Business from Boylan Hall.



Phasing Site Diagrams

Phase 3. School of Education

3.A. Renovate William James Hall;

3.B. Relocate portions of Student Services from Boylan Hall to William James Hall.

Phase 4. School of Humanities and Social Sciences

4.A. New Phase 2 Academic Building:

- Relocate temporary parking onto School of Business building site;
- Construct Phase 2 Academic Building;
- Relocate Social Sciences from Boylan Hall.

4.B. Renovate Boylan Hall.

4.C. Relocation of Program:

- Relocate Humanities and Social Sciences from William James Hall to Boylan Hall and Phase 2 Academic Building;
- Relocate History from Whitehead Hall to Phase 2 Academic Building.

Phase 5. School of Visual Arts, Media and Performing Arts

5.A. Whitehead Hall Extension:

- Relocate Day Care to west side of William James Hall to vacate space for new construction;
- Construct Whitehead Hall Extension for Theater and Visual Arts.

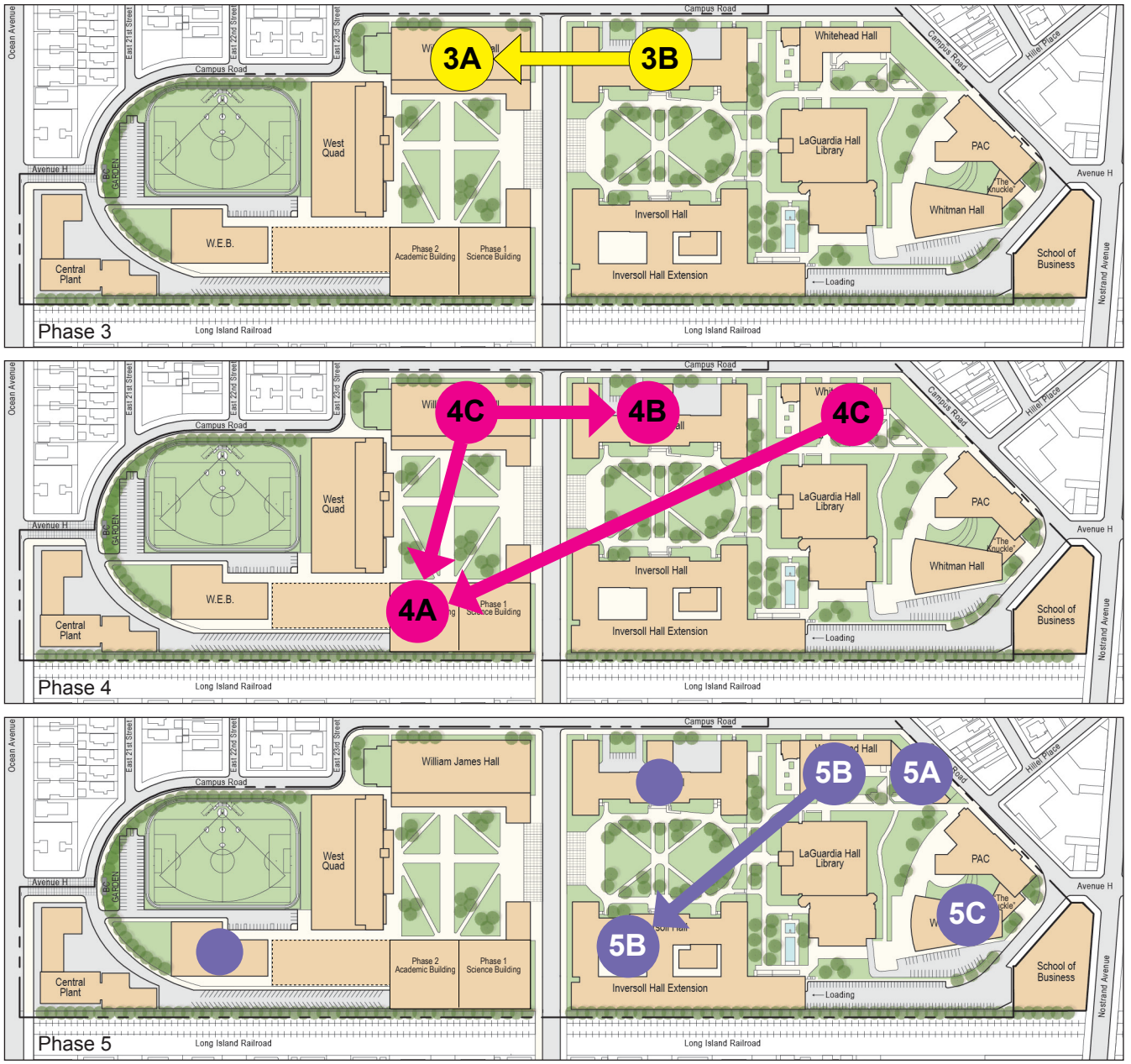
5.B. Whitehead Hall Renovation:

- Relocate Sculpture and Clay studios from Whitehead Hall basement to Ingersoll Hall basement (can occur anytime during Ingersoll Hall renovation);
- Renovate Whitehead Hall for Music and Theater.

5.C. Whitman Hall / "The Knuckle" Renovation:

- Temporarily relocate existing spaces in Whitman Hall / "The Knuckle" to Whitehead Extension (if necessary);
- Renovate Whitman Hall / "The Knuckle".

School of Business
School of Humanities and Social Sciences
School of Natural and Behavioral Sciences
School of Education
School of Visual, Media and Performing Arts



Phasing Site Diagrams

D. Parking Studies

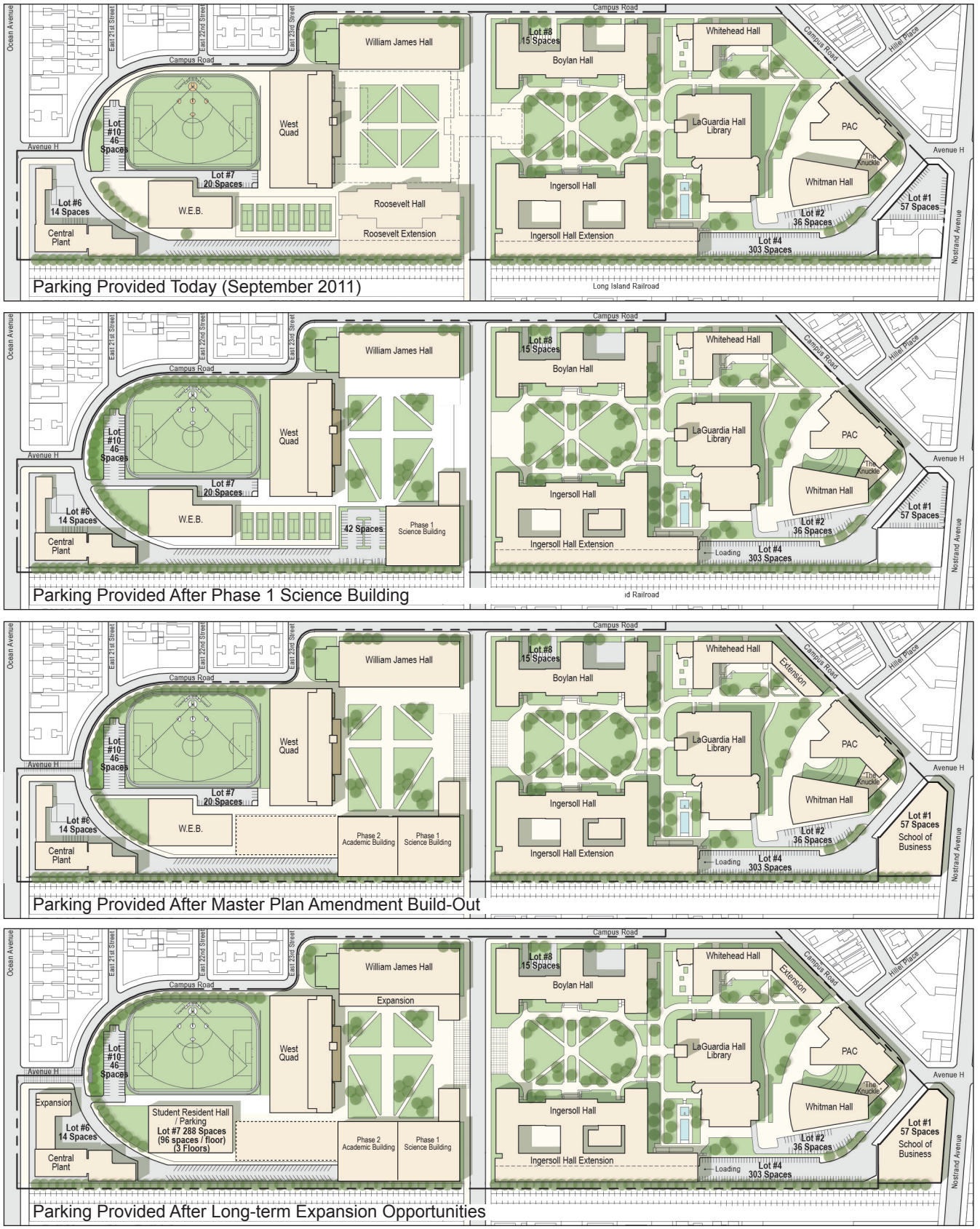
New York City Zoning requirements for parking are based on net assignable square feet of development, rather than the number of occupants in a building, the exception being places of assembly such as auditoriums. Therefore, the required parking for Brooklyn College is, with few exceptions calculated at 1 space for every 2,000 nasf of building.

Today, the College has 491 parking spaces campus-wide, versus the required count of 653 spaces. The College is currently operating under an agreement with the Department of Buildings, allowing it to function without providing the additional required 162 spaces. Once Gershwin Hall is demolished, the need for parking will actually be reduced due to the elimination of Gershwin Theater and the Sam Levinson Recital Hall, with the revised required parking count of 619 spaces. However, this is still greater than the number of parking spaces currently provided on campus and therefore, the College will need to continue to operate under a variance.

Once Ingersoll Hall Courtyard Infill is constructed, Roosevelt Hall/Roosevelt Extension is demolished, and the new Phase 1 Science Building is constructed; the required parking will again be reduced with the new count being 583 spaces. This is considerably less than the number of required spaces today, since the new construction is fewer nasf than what is being demolished. The Phase 1 Science Building will occupy approximately half the site of its predecessor Roosevelt Hall/Roosevelt Extension, leaving the other portion of the site available either for open space/green space, or for temporary surface parking. Surface parking in this location would provide an additional 40 parking spaces, should the College desire additional parking. If this option is exercised, parking on campus will be increased to 533 spaces, reducing the deficit to only 50 spaces. With this, the College will still need to operate under a variance.

When all the projects in The Plan are constructed -- new School of Business building, Whitehead Hall Extension, William James Hall Extension, Phase 2 Academic Building, and the Central Plant Expansion -- the total required parking will be 689 spaces. When Phase 2 Academic Building is constructed, the 40 temporary parking spaces hosted on the site will be lost, bringing the provided count back to the original 491 spaces. It is recommended that parking in association with the School of Business be considered to address this deficit. While technically the College will likely be able to continue to operate under a variance, the lack of affordable and convenient parking may negatively impact the ability of the College to attract students from a broader geographic area. This should be a consideration when evaluating the opportunities to provide parking.

Finally, it should be noted that CUNY does not fund construction of parking facilities, so should the College desire to provide parking it's recommended that joint development ventures be explored to partially offset the costs of doing so. Another option which the College is currently exploring is establishing agreements with existing neighborhood parking operations, such as the Target structure east of campus, to see if a concept of shared use can be developed.



Parking Study Diagrams

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