

CUNY College of Staten Island
Master Plan Amendment

March 24, 2010

DRAFT

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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 the College of Staten Island Master Plan Steering Committee to review the analysis work, to confirm goals, program and priorities, and ultimately to identify the elements of the Recommended Master Plan to meet CSI's goals for the next ten years.

The Master Plan Steering Committee was comprised of a cross section of senior administration, faculty, staff and students, as well as CUNY staff. The consulting team extends their gratitude to the members of the Committee for their participation, commitment and leadership.

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The consultant team also thanks Lilian McGinn and George Targownik in the CSI Campus Planning Department for their work on the building condition assessment and generous assistance providing important background information and insights.

The consultant team, led by Cooper, Robertson & Partners, included:

Rickes Associates, facility program consulting
Mathews Nielsen Landscape Architects, landscape
Sam Schwartz Engineering, transportation
Langan, civil engineering
ICOR Associates, mechanical, electrical and plumbing engineering
VJ Associates, cost estimating

Foreword



Tomás D. Morales, President

The College of Staten Island (CSI), the only public institution of higher education on Staten Island, serves the needs of all in the borough. Centrally located geographically, CSI is also the intellectual, cultural and recreational hub of activity on Staten Island. CSI's 204 acre campus, opened in 1993, has fourteen renovated neo-Georgian buildings, an astrophysical observatory, a Biological and Chemical Sciences building, a Campus Center, the Center for the Arts, the Sports and Recreation Center and the Library that in sum, comprise the brick and mortar of CSI. The heart and soul of the College – its faculty, students and staff have grown remarkably since 1993.

The College of Staten Island has changed in many ways during the past seventeen years. While it holds the promise for the borough's future through our commitment to access and excellence and to extending the benefits of the College to the larger community by supporting programs that serve the people of Staten Island, its agencies and institutions, the College's growing reputation has attracted more students from outside the borough and more foreign students. The continued growth in undergraduate and graduate enrollment and concomitant growth in faculty, new and expanded programs, and the increasing internationalization of the campus necessitates physical expansion and renovation to uphold our reputation as a world-class institution of higher education.

I believe CSI's Master Plan addresses the dynamic and evolving nature of the College. It highlights the College's commitment to effective use of technology in all aspects of the College's operations so as to promote research both at CSI and throughout CUNY, and to strengthen support services and teaching. The Master Plan reflects current needs while at the same time, is imaginative, allowing CSI to capture our developing opportunities. It represents the vision of an institution that is undergoing reflection and review to effectively position itself for the future.

I would like to thank the College community and all who have contributed to the development of the Master Plan. This collaborative effort will support our growing reputation, enhance teaching, research, life-long learning and community involvement, and contribute to raising the profile of the College locally, regionally, nationally and internationally.

Sincerely,

Tomás D. Morales
President

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The College of Staten Island and Its Overview

The College of Staten Island (CSI) is uniquely situated as the only public institution of higher education in the borough. Since its founding in 1976, the College of Staten Island continues to provide opportunities to residents of the borough and beyond.

Located on an attractive 204-acre campus marked by neo-Georgian architecture buildings and beautiful lawns, the College of Staten Island offers the vibrancy of an urban higher education institution with a traditional campus atmosphere and convenient access to the rest of New York City. This spacious campus setting provides opportunity for growth and expansion, as the College meets new challenges and demands in a dynamic education environment.

As a campus of The City University of New York (CUNY), the College of Staten Island advances the University's mission of excellence and access. Nearly 14,000 students, representing 140 countries and speaking more than 110 different languages, call the College home. Over 40% are first-generation college students and 20% are first in their family to study at the college level. While serving the borough of Staten Island, the College increasingly attracts students from the greater New York City region and beyond with its undergraduate, graduate, professional, and international offerings.

Academic flagship areas at the College of Staten Island include polymer science, scientific computation, gender studies, and professional programs in the health sciences, education, and business. A broad array of challenging academic and co-curricular experiences can be found in the College's special undergraduate learning communities, including the Macaulay Honors College of CUNY at CSI, The Verrazano School, and the Teacher Education Honors Academy. The College has a strong tradition of undergraduate research, made possible through close faculty-student mentoring, and international programs, fostered in part by the Center for International Service, a comprehensive locus of international activity on campus.

The College of Staten Island manifests its commitment to excellence in research, scholarship and teaching through its more than 370 highly qualified full-time faculty, distinguished in their academic disciplines and dedicated to providing a transformational education to a diverse student body. Faculty strength and expertise support and advance the work of University centers and research institutes, including the Center for Engineered Polymeric Materials (CePM), Center for Environmental Studies, the Discovery Institute, and the Center for the Study of Staten Island. As a regional leader in high performance computation and home to a cluster-based supercomputer, the College of Staten Island continues to expand its efforts and infrastructure in this burgeoning area.

Since its 1993 move to the current Willowbrook facility, the College of Staten Island has evolved as a vibrant campus community with expanding regional, national, and international impact. In

order to build upon this success, the College is poised to modify and develop its facilities and infrastructure to accommodate further increases in student enrollment, meet the vision of new and expanded programs with the commensurate addition of professional talent, and enhance its beautiful natural setting.

Highlights of the College of Staten Island's 1993 mission statement include the following:

- Commitment to both access and excellence as the only public college on Staten Island
- CSI serves the pivotal endeavors of teaching and research that promote discovery and dissemination of knowledge while developing human minds and spirits
- Faculty, administration, and staff practice their commitment to educational excellence as they instill in students preparing to enter their chosen careers an enduring love of learning, a sensitivity to pluralism and diversity, a recognition of their responsibility to work for the common good, and an informed respect for the interdependence of all people
- CSI's 12 goals include:
 - Advancing the effective use of technology in all aspects of the College's operations in order to strengthen support services, teaching, and research
 - Furthering, in all aspects of the College's activities, an appreciation of the pluralism of American society and an awareness of the importance of global education and international understanding.
 - Building academic and research programs through collaborative initiatives with the community colleges, senior colleges, and the Graduate School of The City University of New York and with national and international counterparts.
 - Strengthening student interest in life-long learning, purposeful participation in the issues that face our society, and a lively commitment to their own physical and spiritual well-being

Degree Programs

The College of Staten Island is organized into two divisions: Humanities and Social Science, and Science and Technology. The College currently offers 82 undergraduate majors and interdisciplinary programs, 24 graduate and advanced certificate programs, and opportunities for doctoral studies spanning liberal arts, social sciences, natural sciences, and professional fields. CSI participates in 30 of the 34 CUNY doctoral programs through the Graduate Center. There are currently over 160 doctoral students mentored by College of Staten Island faculty; 137 of these are doing their primary work on the CSI campus and CSI holds the campus accreditation for the DPT degree.

DIVISIONS

Humanities and Social Science
Science and Technology

MASTERS DEGREES

MSEd

Education
Adolescence Ed: Biology
Adolescence Ed: English
Adolescence Ed: Mathematics
Adolescence Ed: Social Studies
Childhood Education
Special Education: Childhood
Special Education: Middle School

MA

Cinema And Media Studies
English
History
Liberal Studies

MS

Adult Health Nursing
Biology
Business Management
Computer Science
Environmental Science
Gerontological Nursing
Mental Health Counseling
Neuroscience, Mental Retardation &
Developmental Disabilities

GRADUATE CERTIFICATE

Adult Health Nursing
Cultural Competence Nursing
Gerontological Nursing
School District Leadership & School Building
Leadership
Nursing Education

BACCALAUREATE DEGREES

BA

African-American Studies
American Studies
Art
Art
Art: Photography
Cinema Studies
Cinema Studies
Cinema Studies: Production
Economics
Education
Adolescence Ed.: English
Adolescence Ed.: English-Dramatic Lit
Adolescence Ed.: English-Literature
Adolescence Ed.: English-Writing
Adolescence Ed.: History
Adolescence Ed.: Spanish
Science, Letters & Society (SLS)
SLS
SLS: Childhood
SLS: Early Childhood
English
English
English: Dramatic Literature
English: Linguistics
English: Literature
English: Writing
History
International Studies
Music
Philosophy
Philosophy
Philosophy: Political Science
Political Science
Psychology
Social Work
Sociology / Anthropology
Spanish
Women's Studies

BACCALAUREATE DEGREES

BS
 Accounting
 Art
 Art
 Art: Photography
 Biochemistry
 Biology
 Biology
 Biology: Bioinformatics
 Business
 Business
 Business: Finance
 Business: International
 Business: Management
 Business: Marketing
 Chemistry
 Communications
 Communications
 Communications: Corporate
 Communications: Design & Digital Media
 Communications: Journalism
 Communications: Media Studies
 Communications: Publishing Design
 Computer Science
 Computer Science
 Computer Science: Math
 Dramatic Arts
 Economics
 Economics
 Economics: Business
 Economics: Finance
 Education
 Adolescence Ed.: Biology
 Adolescence Ed.: Chemistry
 Adolescence Ed.: Mathematics
 Engineering Science
 Information Systems
 International Studies
 Mathematics
 Medical Technology
 Music
 Music
 Music: Electrical Technology
 Nursing
 Physics

ADDITIONAL MINORS

Art History
 StUdio Art
 Dance
 Disability Studies
 French
 Geography
 Geology
 Italian
 Public Administration

CERTIFICATES

Modern China Studies

ASSOCIATE DEGREES

AA
 Liberal Arts & Sciences: Non-Science

AS
 Liberal Arts & Sciences: Science
 Engineering Science

AAS
 Business
 Business
 Business: Accounting
 Business: Finance
 Business: Information Systems
 Business: International Business
 Business: Management/Marketing
 Computer Technology
 Computer Technology
 Computer Tech: Business Programming
 Computer Tech: Programming
 Electrical Engineering Technology
 Nursing

I. EXECUTIVE SUMMARY

I. Executive Summary

A. Introduction

The College of Staten Island (CSI) is the only CUNY College in the borough and one of the largest employers in Staten Island. During a period of dynamic growth in Staten Island, CSI has served an important role as an essential educational, research and cultural resource for the community. With the realization of the High Performance Computing Center, through the assistance of CUNY and a National Science Foundation grant, CSI has also become a center for computational research for the entire CUNY system.

This Master Plan Amendment, the first since the College opened on this site in 1993, represents the result of a comprehensive and inclusive process defining the programmatic and physical requirements of CSI's mission and future goals for the next 10-year period. The elements of the plan support the approved enrollment and a corresponding facility program to serve its objectives for enhancing teaching, research, and student life. A new mixed-use building for the High Performance Computing and Visualization Center will permit this area to realize its full potential as a center of excellence for inter-disciplinary research.

The Master Plan addresses immediate needs and long-term goals in manageable steps:

1. To provide improved and expanded space for instruction and research
2. To improve access and wayfinding
3. To support student life and faculty development, thereby attracting and retaining high-quality candidates
4. To identify sites for future development and enhance the campus setting
5. To upgrade infrastructure essential to supporting CSI's operations and mission
6. To provide a more sustainable campus



Alumni Walk, CUNY College of Staten Island

B. Location

The College of Staten Island is located in the center of the borough near the Staten Island Expressway, but remote from rail service which runs to the south. Several MTA buses serve the campus main entrance on Victory Boulevard. A popular shuttle bus recently initiated by CSI provides regular service to the ferry in St. George.

The 204 acre campus occupies a gently sloping site. It is bounded by Victory Boulevard and a residential neighborhood to the north, state institutions for the mentally disabled to the east and south, and Willowbrook Park to the west. This city park is part of the Staten Island Green Belt. The campus has a visible public presence only at the main entrance on Victory Boulevard.



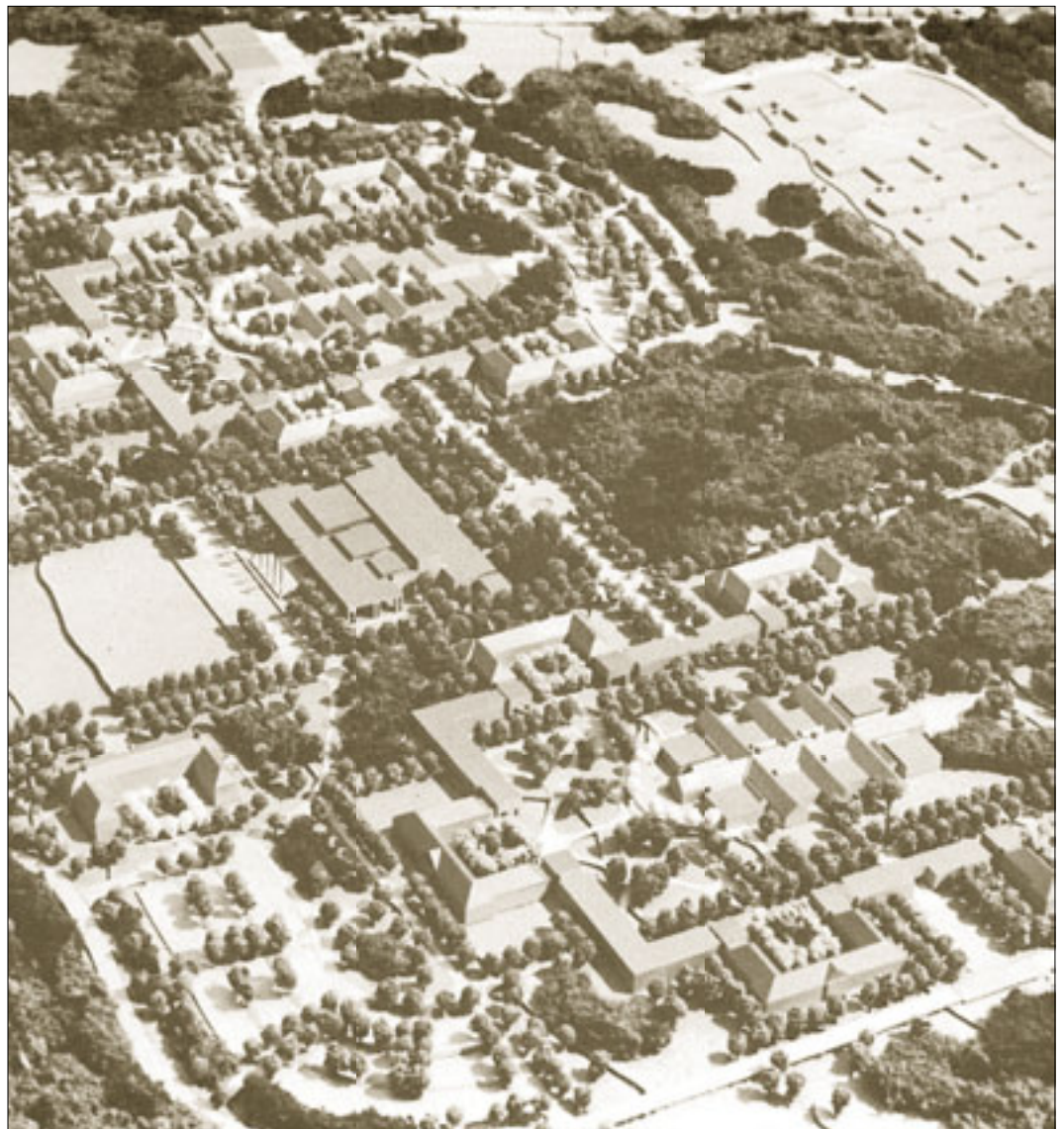
Campus Location

C. History and Campus Character

The land occupied by the campus was originally wooded and bisected by several watercourses running to a wetland northeast of the current site. In the 1930s, planning began for a state institution for the mentally disabled. The resulting facility opened in 1942, but served as a hospital for POWs in World War II before converting to its original purpose as the Willowbrook State School. Following extensive controversy, Willowbrook was closed in 1987. In 1986 CUNY approved a Master Plan for use of the majority of the site for the College of Staten Island, a consolidation of CSI's Sunnyside campus and St. George campus. The new campus opened in 1993.



Former Halloran Hospital on site of CSI Great Lawn



1986 Campus Master Plan model

Campus facilities are a mix of new and older buildings. Fifteen of the twenty-one CSI buildings, representing 67% of the floor area, were originally Willowbrook buildings. These buildings were adapted for educational use and are characterized by red brick and tile roof exteriors in a neo-Georgian style. The remaining buildings were purpose-built for the College and opened in the early 1990's. While stylistically cohesive, campus buildings are dispersed across large lawns due to the layout inherited from Willowbrook. The north and south academic quadrangles are somewhat distant and disconnected. The campus lacks welcoming outdoor gathering spaces that act as focal points to foster a sense of community. This, combined with an ineffective signage system, results in a disorienting experience for visitors and poor wayfinding. The spacious green campus does, however, provided significant opportunity for future development sites and landscape enhancements to create a more welcoming, vibrant, and sustainable setting for the College.



Typical Academic Building, 1942, Renovated 1993



Center for the Arts, 1993

The Existing Campus



D. Enrollment

The 1986 Master Plan envisioned an enrollment of 8,000 full time equivalent students. The total enrollment in 2006-07 was 9,255 FTES (12,313 headcount). In the last 2 years, the enrollment has grown sharply to 9,899 FTES (+7%) in order to serve the needs of qualified students in the borough and beyond. This current enrollment is 24% greater than what was planned for in the original Master Plan without any corresponding facility expansion since the College opened in 1993.

The majority of students are undergraduate baccalaureate candidates. There has been a recent trend to more full-time students. The largest undergraduate programs (2006-07) are English, Business, Mathematics, and Psychology. The largest graduate enrollment is in Education.

The approved enrollment for timeframe of this Master Plan Update (2018-19) is 13,622 FTES. This represents a 38% increase over 2008-09, and is consistent with recent growth trends. While the majority of CSI's enrollment will continue to be Staten Island residents, the College plans to seek more students in Brooklyn and more international students.

E. Space Needs and Benchmarking

The College has 1,339,535 gross square feet of development distributed in 21 existing buildings. This provides 657,688 occupied assignable square feet (plus 68,718 ASF of unoccupied warehouse space in Building 2M, to be repurposed and occupied in this plan). Comparing enrollment to occupied space, CSI had 71 ASF/FTES in 2006-07. For the 2008-09 enrollment, this figure drops to 68 ASF/FTE.

In the long-term, CUNY would recommend that CSI facility expansion provide 90 ASF/FTES to meet goals for academics, research and support, and to bring CSI more in line with other CUNY senior colleges and peer institutions. This would represent approximately 566,000 ASF of additional floor area (950,000 GSF). Given the economic crisis and resulting budget constraints, however, this plan update reflects a select group of high-priority development projects that provide an estimated 235,000 ASF of additional space through 270,000 GSF of new construction, and fit-out of the vacant 2M Building. This represents a significant increase of 35% in usable floor area. The plan addresses the most pressing space needs for additional classroom, lab, faculty office, library, research and support space.

F. Program Organization and Connectivity

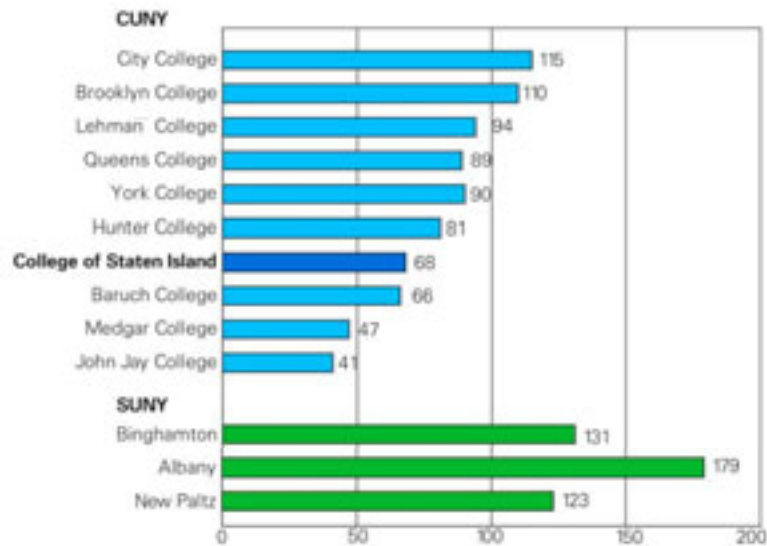
Space Assessment (2018/19)

Space Type	Existing Space (ASF)	10-Year Program (ASF)	% Increase
Instruction and Research Space			
Classroom, Labs, Research, Offices	279,547	380,447	36%
Physical Education	46,855	53,855	15%
Subtotal	326,402	434,302	33%
Support Space			
Administrative Office	78,462	83,617	7%
Student/Faculty Service	76,850	109,149	42%
Library / Study	73,152	121,052	65%
Assembly	34,300	40,300	17%
Campus Services	107,916	128,416	19%
Non-Institutional Agencies	606	606	0%
Subtotal	351,286	468,140	33%
Subtotal: Occupied	677,688	902,442	33%
Vacant (2M Building)	68,718	0	
GRAND TOTAL NASF	746,406	902,442	21%
Student FTE	9,899	13,625	38%
NASF per FTE (occupied areas)	68	66	

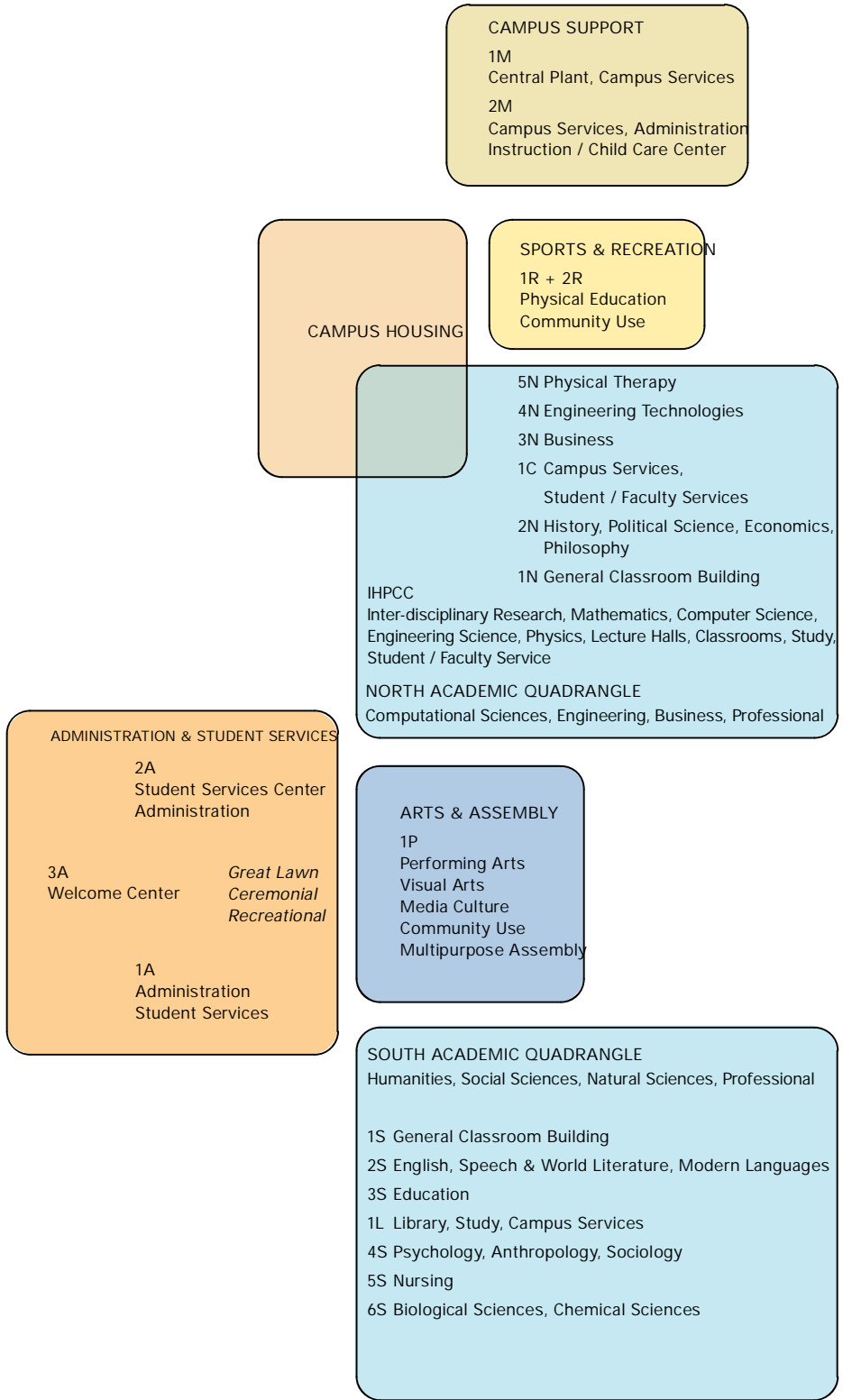
Note:

1. Lab Support & Research category includes IHPCC and Imaging Center .
2. Existing FTE represents 2008-2009

Benchmarking: Floor Area per Student / (ASF per FTES, excluding residential)



Source: CUNY, SUNY



The Plan provides needed expansion through development projects summarized in the next section, and also permits relocation and re-organization of select departments and functions to improve operational efficiencies and to support interdisciplinary research.

Key program organization strategies in the Plan include:

- Consolidation of the departments of Computer Science, Engineering Science, Physics and Mathematics, now scattered in several buildings in the north and south academic quadrangles, in a new mixed-use academic and research building, the Interdisciplinary High Performance Computational Center (IHGCC), with space to foster interdisciplinary research.
- Conversion of a vacated building for general classroom use in the north campus (Building 1N) and one in the south campus (Building 1S) to permit greater scheduling efficiencies.
- Expansion of academic office space for departments remaining in place, to support needed faculty growth, by converting existing space, as permitted by the re-purposed classroom buildings.
- Relocation of “back office” administrative functions to the campus periphery at Building 2M to permit expansion and consolidation of student services in the campus core
- Relocation of Continuing Education classes largely to the campus periphery to optimize classroom utilization in the campus core for baccalaureate students.
- Relocation of Admissions and other “front of house” functions to a new Welcome Center in Building 3A to serve a new public face for the College.

The Plan also addresses key planning goals of re-balancing the campus and better connecting north and south. The south academic quadrangle currently has significantly more classroom and lab seats than the north, with associated challenges for access and scheduling. Locating the new IHGCC building in the north academic quadrangle, near the geographical center of the campus, provides more classrooms and labs in the north, as well as a café to serve as a hub of activity near the geographical center of the campus, thereby better link north and south.



G. Development Projects

The Master Plan Update includes several development projects to address the current space deficit and the needs of a growing student population. The most significant new project is the mixed-use academic and research building, the Interdisciplinary High Performance Computational Center (IHGCC). The Plan also includes four additions to expand or transform functions for existing facilities, a new greenhouse for the Sciences, and the fit-out Building 2M, currently a large vacant warehouse. Together, these projects provide 235,618 ASF of additional space through 270,000 GSF of new construction. The location of these projects responds to specific facility space needs in several areas of the campus for academics, research, study and student and faculty development.

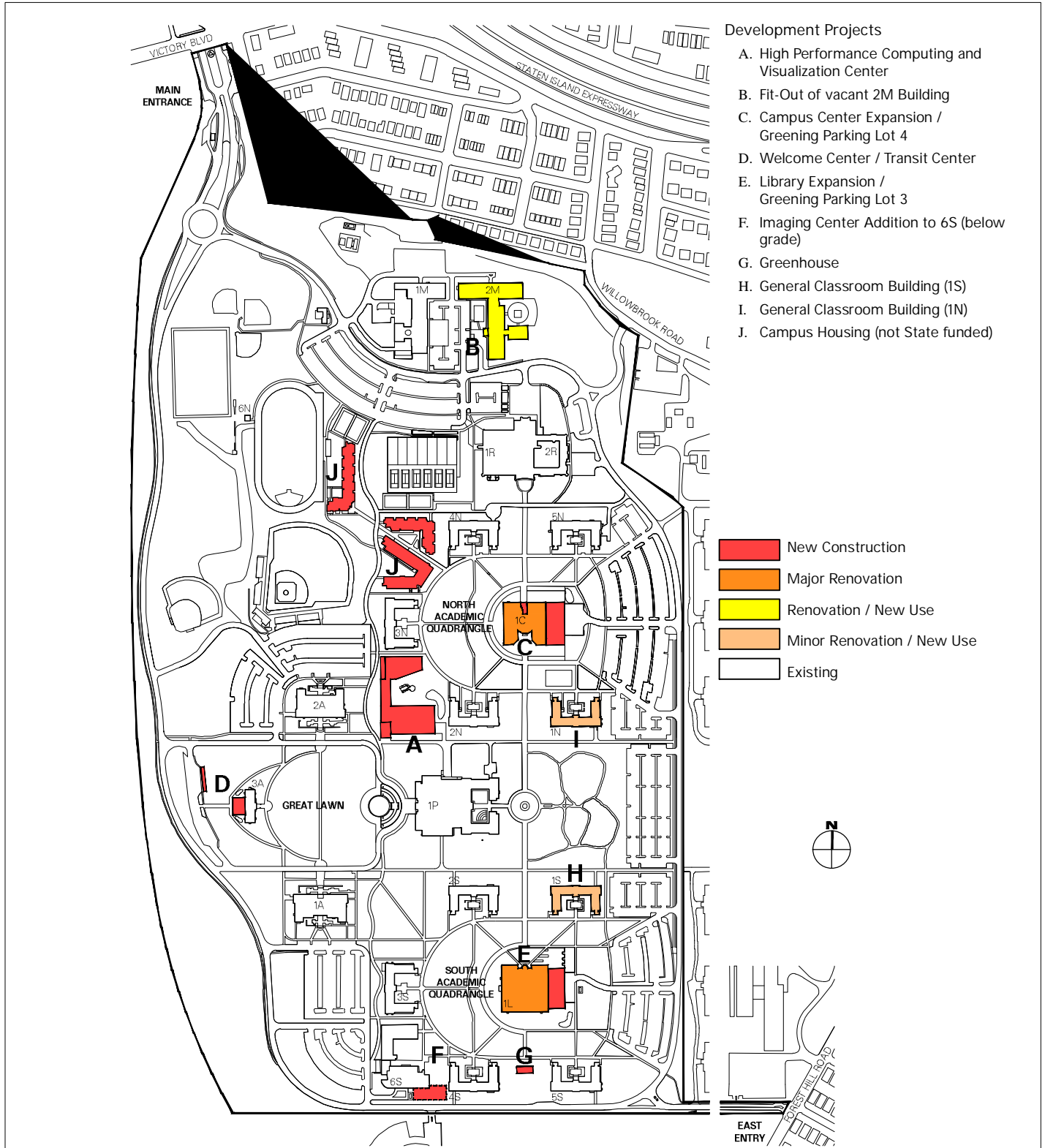
Existing Campus Floor Area	ASF	GSF	Net to Gross %
Occupied Spaces	677,688	1,217,535	56%
Vacant / Building 2M	68,718	122,000	
Total	746,406	1,339,535	56%
Proposed Additional Floor Area			
IHGCC / Mixed-Use Building	100,000	175,000	57%
Building 2M Fit-out with New Entry	68,718	700	NA
Campus Center Expansion	18,000	30,000	60% *
Welcome Center Expansion	2,500	4,000	63%
Library Expansion	39,500	50,000	79% *
Imaging Center / Building 6S Addition	4,800	8,000	60%
Greenhouse	2,100	2,100	100%
Subtotal: Additional	235,618	269,800	87%
% Increase	35%	20%	
Total Proposed Campus Floor Area	913,306	1,609,335	57%

* Net / Gross to match existing building to be expanded

a. IHGCC Building

A major element of the Master Plan is a new mixed-use building to provide appropriate space for the Interdisciplinary High Performance Computational Center, now housed in Building 1M, the Central Plant. This will be the first new building on the campus since it opened. It will permit the consolidation of the departments of Mathematics, Computer Science, Engineering Science and Physics and adjacent inter-disciplinary research space to leverage the full potential of this powerful computational resource. Relocating these departments will also allow Building 1N and Building 1S to be converted to general classroom buildings, providing much-needed academic space for departments in the north and south academic quadrangles. The IHGCC building will also include classrooms and lecture halls, as well as important space for study, student services and faculty development. The building, planned for 100,000 ASF / 175,000 GSF, is proposed for a centrally located site in the north academic quadrangle.

Master Plan Amendment: Building Development



b. Building 2M

The largely vacant warehouse building at the north end of the campus will be renovated for adaptive re-use. It will contain a mix of instructional and support spaces to make use of this opportunity and to permit relocation of select functions from the campus core, creating internal expansion for essential functions there.



c. Campus Housing

The Plan identified a preferred location for the first housing development on campus. This initiative will attract national and international students and create a more vibrant campus life. The location is near the Campus Center, Sports and Recreation Center, and the main campus entrance. The project is a public-private partnership, currently on hold pending financing. The floor area for planned Campus Housing is not included in the projected additional space for the master plan, since it is residential and not state-funded.

d. Building 1C, Campus Center Expansion

The campus has a current deficit of space to support student life. The Campus Center is considered undersized and deficient and disorienting in its layout. The Plan includes a project to expand the campus center by 30,000 GSF, comprehensively renovating existing areas to provide a more functional and welcoming environment for campus life. This will be particularly beneficial for supporting the full-time students in the nearby campus housing.

e. Building 3A, Welcome Center

To provide a destination and “front door” to the College for prospective students and visitors, the Plan includes a modest addition and renovation of Administration Building at the foot of the Great Lawn. Relocating existing back-office functions will allow this building to serve a more appropriate public and symbolic role. A nearby new Transit Center will energize this area and provide improved transit access for the College and surrounding community.

f. Building 1L, Library Expansion

The plan includes a 50,000 GSF expansion of the Library that will provide proper collection space for an institution of this size, both for books and electronic resources, and expanded study space for the student body, which has a significant deficit for the current enrollment.



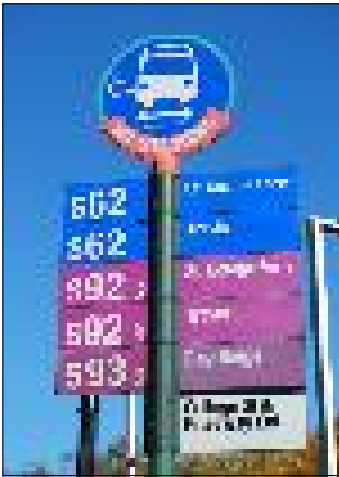
g. South Academic Quadrangle Science Projects

In addition to current renovations to Building 6S to improve operations and reduce energy use, the Master Plan includes two projects to expand teaching and research for the Biological and Chemical Science departments. These improvements include a 8,000 GSF addition to Building 6S for an advanced Imaging Center and a greenhouse between Buildings 4S and 5S for botanical study and research.



H. Building Condition

A recently completed comprehensive building and site condition assessment performed by CSI staff has informed the Master Plan Amendment. The most significant building condition deficiencies are addressed by the projects in the Plan and by currently funded near-term projects. The balance of condition issues would be addressed through on-going maintenance and state-of-good-repair funding.



I. Access and Sustainable Transportation Alternatives

Physical access represents one of the greatest challenges facing the College. Acute and prolonged traffic congestion at the entrances during peak times hinders access. This and the need for adequate parking were urgent concerns consistently voiced by members of the CSI community at meetings on the master plan. The plan incorporates several measures to improve access and move toward a more sustainable campus. Projects are included to reconfigure the entrances to improve flow. A portion of the loop road is reconfigured to improve pedestrian safety. Bicycle lanes are provided throughout the campus. A new transit center is planned for MTA buses to serve the core of the campus with a nearby visitor parking area. The current Loop Road and Ferry Bus services would continue.



The plan strongly encourages continued and enhanced Transportation Demand Management (TDM) to decrease dependence on single-occupancy automobile access to the greatest extent possible, to foster a more sustainable culture on campus and reduce the need for additional parking. The CSI Ferry Shuttle is an excellent example of such an initiative that has already dampened parking demand significantly. The plan includes recommendations for multiple possible TDM measures. Another potential measure for managing parking demand is revision of the course schedule. For instance, increasing the number of Friday classes will even out parking peaks and optimize utilization of instructional spaces. Given anticipated enrollment growth, the scarcity of transit options in the area, and operating budget challenges, however, it is not possible to determine if TDM can eliminate the need for additional parking beyond the current 3,000 spaces. For this reason, the College has asked that the plan locate a possible future garage (self-funded) on the site of a current parking lot near the campus core but removed from aesthetically sensitive areas.



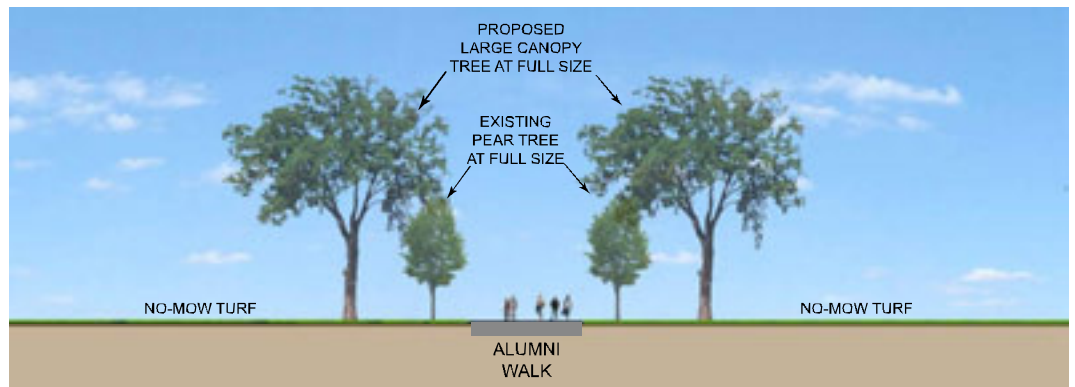
J. Circulation and Wayfinding

To create a more welcoming experience for visitors and a more legible wayfinding system for the campus community, the plan includes a new information kiosk near the main entrance and a budget for a campus-wide signage project. Large service vehicles will be restricted from the interior of the north and south academic quadrangle through relocated service areas and from Alumni Walk in order to provide a more pedestrian-centered setting.



K. Site and Landscape

In addition to measures promoting sustainability, the Plan includes landscape projects and guidelines to create a more attractive and comfortable outdoor environment, to improve the pedestrian experience and to improve outdoor social and gathering spaces. In many cases, these goals can be met through the same initiatives. Landscape improvements are bundled with new building and renovation/addition projects for adjacent areas. Other projects, such as upgrading campus-wide hardscape, and planting additional trees are identified separately. A signature element of the plan is a new pedestrian and bicycle path along the length of the west edge of the campus connecting the new IHPCC to the proposed housing to the north and areas to the south. In counterpoint to the straight paths through the lawn which characterize most of the campus, the new Campus Walk has gentle curves through a varied, sustainable landscape with shade trees and no-mow grasses to provide a richer, more pleasant experience.



Master Plan Amendment: Site and Landscape



L. Sustainability

The Plan recommends a broad range of initiatives to make the campus more sustainable in its operations, facilities and setting. The measures summarized below can also serve as opportunities for integrating sustainability into the curriculum and life of the campus.

Architecture

- LEED Silver requirement for new construction

Energy

- Geo-thermal systems for heating and cooling new buildings and additions
- Efficiency upgrades for central plant and building systems

Access and Transportation

- Bicycle routes throughout the campus
- New Transit Center
- Encourage TDM measures to decrease need for additional parking

Stormwater

- Rain gardens to manage runoff quantity and improve quality for new construction

Landscape

- Greening parking lots
- Replace high-maintenance turf with no-mow grass or meadow in select areas
- Tree planting to create shade along walks, create wind breaks and enhance the setting

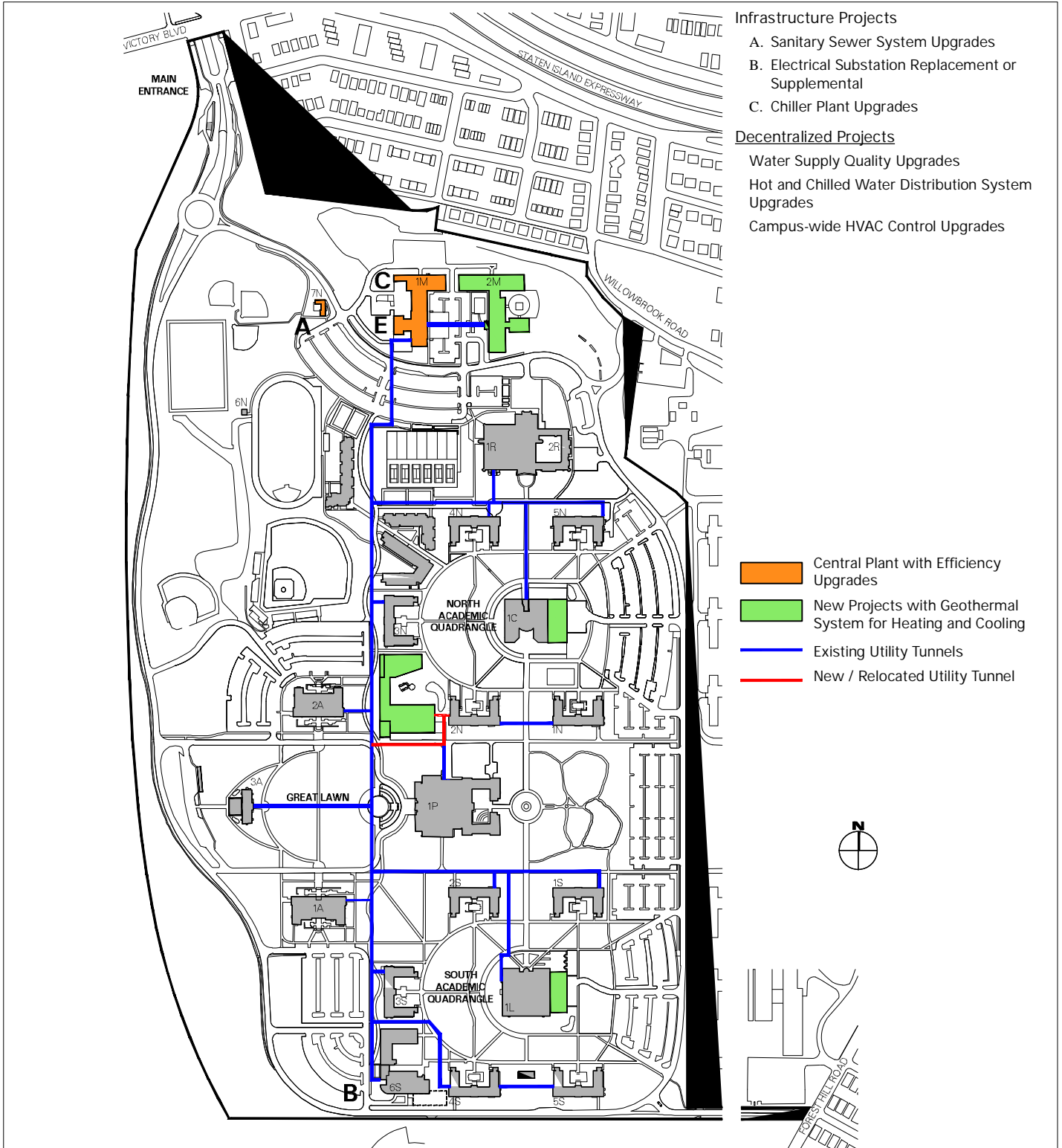


Typical Rain Garden



No Mow Grass

Master Plan Amendment: Infrastructure



M. Infrastructure

The Plan outlines important infrastructure upgrades to support growth that meet academic and research goals and address major deficiencies. These include projects upgrading campus water quality, the sanitary sewer system and the campus-wide electrical system. Heating and cooling for new buildings will be done in a de-centralized manner to permit use of more efficient and sustainable technologies to serve new buildings and major central plant upgrades. Geothermal systems are proposed for all major new projects for energy efficiency. Building 1M will continue to serve as the central plant for the majority of the campus, with energy efficiency upgrades, through the existing utility tunnel system.

N. Implementation

The sequence, scope and timeframe to realize elements of the plan will depend on available funding and other factors. The Plan is a flexible, living document that can adapt to meet unforeseen conditions. Many elements can be realized as stand-alone projects.

In order to address the College's goals and most pressing need for expanded instruction space and the computation research center, CSI has identified the new IHPCC and the fit-out of Building 2M, as the highest priority projects for implementation. These projects will also allow consolidating related departments, free up space in the campus core for expanded classrooms and labs, and permit greater operational efficiencies. Library expansion is needed to accommodate sufficient collections for an institution of this size and to provide adequate study areas. To improve access and relieve traffic congestion that adversely impact both the College and surrounding community, the new entry drive from Willowbrook Road is also considered a high priority project. Resources will also need to be focused on managing transportation demand to the campus in order to provide adequate access for the expanded enrollment.



II. THE COLLEGE TODAY

II. The College Today

A. Introduction

In order to realize the College's goals for academics, research and campus life in the Master Plan Amendment, it was essential first to understand the broad spectrum of what exists today. The planning team studied not only space utilization, enrollment and the range of academic programs, but also the setting, facilities, and how people come and go from the campus. This knowledge of existing conditions served as an important foundation from which to project planning alternatives for the next ten years and to arrive at a shared vision for updating the Master Plan.

CSI plays a vital role for the Borough of Staten Island. It is not only an important educational and cultural resource, but also a very significant economic resource, as the borough's second largest employer. President Morales is a member of several boards and committees in Staten Island. Under his leadership, the College has expanded its outreach to the community. As a result, CSI is better aware of opportunities for how it can continue to serve the greater Staten Island community in response to dynamic changes in the borough. CSI is also more aware of how these changes may affect the College.



CSI is the only City University of New York unit in Staten Island. As shown on the map below, the College of Staten Island is also the most remote from CUNY's "center of gravity". This presents unique challenges for access and interaction with the other campuses. Its double mission — to award associate and bachelor's degrees — dates back to its founding in 1976 after a merger of Staten Island Community College and Richmond College. The spacious 204-acre campus, the largest of any higher educational institution in New York City, is both a blessing and a challenge for CSI, since it provides opportunities for growth, but requires significantly greater operating costs for maintaining roads, grounds, and transit systems. In this respect, CSI is different from other CUNY colleges.



Figure 1: Regional Context



Figure 2: CUNY Senior Colleges

B. Campus History

The land occupied by the campus was originally mostly wooded and crossed by several water courses and wetlands as shown in the map below by CSI Professor Alan Benimoff that overlays water features from the early 20th Century on the current campus. Some of these water courses remain today, either open or encased in below grade piping. It is not known what happened to the creek that passed through what is now the north academic quadrangle.

In 1938, the State of New York began planning to build a school for mentally retarded children on the site. Before construction was completed in 1942, the institution was converted for use as a military hospital for prisoners of war, and named Halloran General Hospital. Following World War II, the facility returned to its original use as the Willowbrook State School.



Figure 3: 1911 Streams and Wetlands on CSI Campus



Willowbrook State School

In the 1960s, the school was the focus of public concern over medical experiments. Further abuses exposed in the 1970s, included overcrowding, unsanitary conditions, and physical and mental abuse. In response to growing concern about conditions at Willowbrook, John Lennon organized a benefit concert in 1972, "One to One, the Concert for Willowbrook".

The State of New York closed the facility, which had been renamed the Staten Island Development Center, in September 1987. The negative publicity generated by resulting lawsuits was largely responsible for the federal Civil Rights of Institutionalized Persons Act of 1980.

C. The 1986 Master Plan

The original master plan for the College of Staten Island at Willowbrook was completed in 1986 by Edward Durrell Stone Associates, PC. The plan combined CSI's Sunnyside and St. George campuses into one physical plant. The City acquired a portion of the Willowbrook property for the College of Staten Island Campus in 1989. Construction was completed and the campus opened in 1993.

LEGEND

- 1. Building & Grounds
- 2. Parking
- 3. Gymnasium
- 4. Student Center
- 5. North Academic Quadrant
- 6. Performing & Creative Arts
- 7. South Academic Quadrant
- 8. Library
- 9. Administration

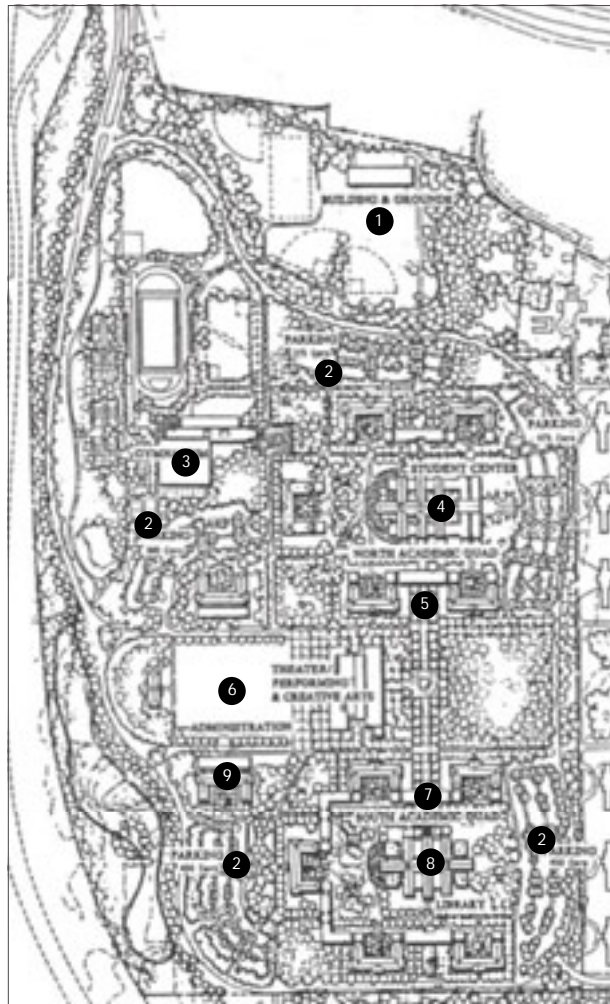


Figure 4: 1986 Campus Master Plan

The 1986 plan transformed the site by adding new buildings, removing facilities that were not appropriate, and creating a new system of vehicle and pedestrian circulation. Most notably, the 6-story hospital was demolished to create the Great Lawn. The plan converted former residential clusters into the academic quadrangles by adapting dormitory buildings to serve as academic buildings.

The Campus Center anchors the center of the north quadrangle and the Library for the south. To link north and south, the plan created a main north-south "main street", Alumni Walk, through the grove of trees that was a remnant of the original woodland on the site. The new Performing Arts Center acts as an important destination at the midpoint of Alumni Walk and a center piece of the ceremonial space of the Great Lawn.



1986 Master Plan images



The campus today generally follows the organization of the master plan, but with some significant, interesting differences. While the 1986 plan proposed adaptive reuse of Willowbrook buildings for the Campus Center and Library, new purpose-built facilities were realized instead, likely because of the difficulty retrofitting these adequately. The original plan included significantly larger additions to the academic buildings, to create a new interior façade for each quadrangle and to link the academic buildings to improve connectivity and to frame the quadrangles more fully. These more ambitious additions were not built. The Willowbrook central plant and laundry/kitchen facilities were not demolished as shown on the 1986 plan, but retained as Buildings 1M and 2M, and the gymnasium built in a different location, north of the Campus Center. Finally, the 1986 plan proposed a lush, largely wooded landscape for the campus, with pockets of open areas framed by trees. The actual existing landscape can be understood as the opposite - large expanses of open lawn area punctuated by clusters of trees in some interior areas and around the perimeter. Recent efforts by the College to add many trees have helped to make the campus more verdant.

The original master plan proposed 625,730 net assignable square feet of space for 8,000 full time equivalent students (78 NSAF/FTE). The existing facilities as realized in 1993 were actually 23% larger at 769,092 NASF.

D. Site Context

Located in the center of Staten Island, the CSI campus main entrance is on Victory Boulevard and adjacent to the Staten Island Expressway (I-278). The campus is surrounded by open space, institutional facilities, and some residential areas. Willowbrook Park borders the west side of the campus. This New York City park has a "Forever Wild" designation and is part of the Staten Island Green Belt which encompasses 2,800 acres of parks and natural areas with a network of hiking trails. To the south of the campus in the Forest Hills area lies the Staten Island Developmental Disabilities Services Office (SIDDSO), a residential facility. The Institute for Basic Research in Developmental Disabilities (IBR, the research arm of the New York State Office of Mental Retardation and Developmental Disabilities - OMRDD) borders the east side of the campus and a residential area borders the north. A 10-unit residential development is being considered for vacant land immediately adjacent to the north east boundary of the campus, accessing Willowbrook Road. Overall, the campus is not visible from the surrounding community, with the exception of the entrances.





Congestion at left turn into CSI on Victory Boulevard

E. Access

There are two full-time entrances to the campus – the main entrance at Victory Boulevard and the east entrance to Forest Hill Road. At peak traffic times, OMRDD allows CSI vehicles to pass through their site to access Willowbrook Road to the east. A gated emergency entrance to SIDDSO to the south also exists.

At peak times, vehicles coming to CSI cause acute and prolonged congestion along Victory Boulevard. This not only causes considerable delays for College students, faculty and staff, but also for those in the surrounding community passing the campus. It is also believed to have a negative impact on prospective students. The constraint of the two existing full-time entrances for a campus population of approximately 14,000 is considered to be one of CSI's most significant facility challenges.

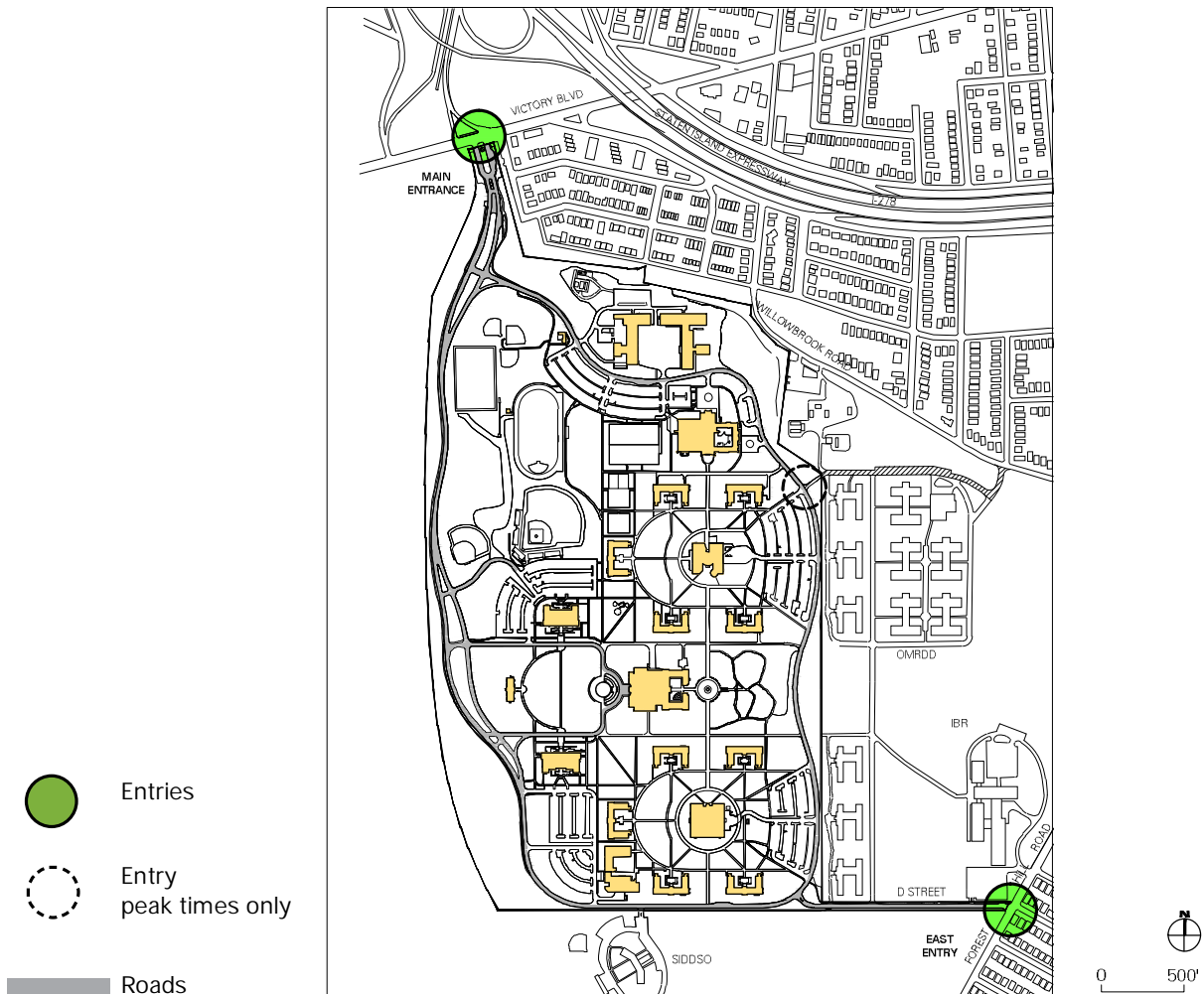


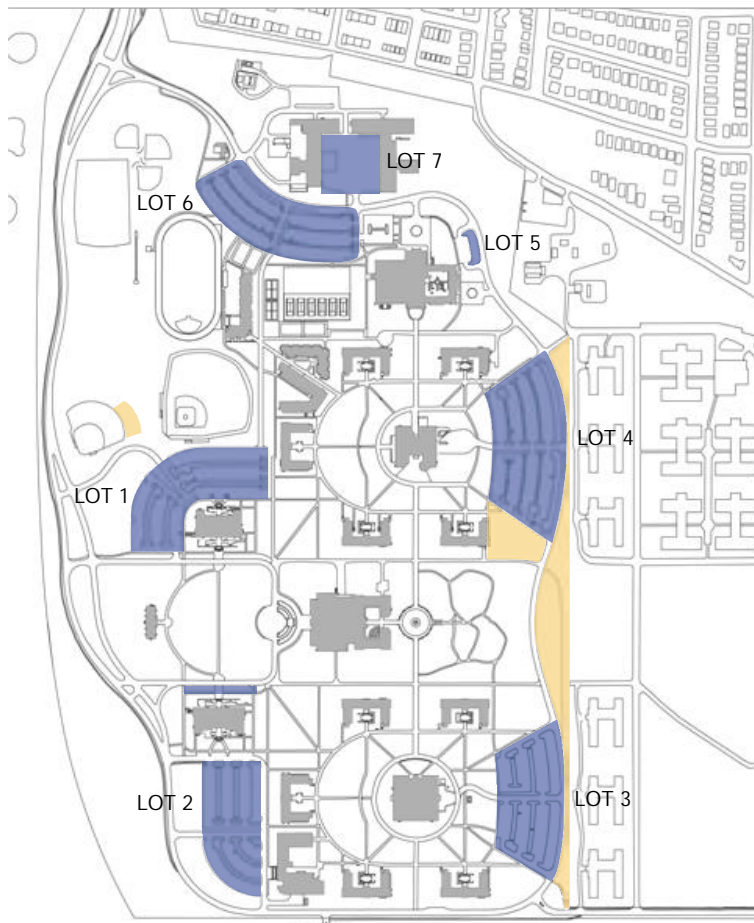
Figure 5: Existing Entries and Roads

Unlike many CUNY colleges nearby transit provides access to the majority of the campus population, CSI has limited options for public transportation. The Staten Island Railway is remote from the campus to the south. Several MTA buses serve the Victory Boulevard entrance and these are well-used, including a limited Brooklyn express bus service and a Manhattan express. Because of general traffic congestion, however, travel times are slow. To make city bus service a more effective and attractive alternative, the College has been in discussions with the MTA to restore bus service into the campus, as existing previously at Willowbrook.

In 2008, CSI inaugurated a self-funded shuttle bus service to the Staten Island Ferry in St George. This has proven to be very popular and has decreased the rate of parking demand during a period of increased enrollment. There are three shuttle buses in operation on weekdays, averaging about 1,500 riders per day, and serving a total of 226,000 passengers last year. The shuttle stop in front of the Building 1P has the second largest ridership of any bus stop in the borough (source: Prof. Jon Peters). This service represents a major step in addressing transportation challenges for the College. This service supplements the campus loop road bus and disability service transit, with together with the shuttle represent a direct operating cost to CSI of approximately \$1 million.

Figure 6: Existing Parking Lots

	PARKING SPACES
LOT 1	403
LOT 2	370
LOT 3	308
LOT 4	444
LOT 5	24
LOT 6	469
LOT 7	98
ADMIN LOOP	41
SUBTOTAL	2,157
EAST SIDE (GRAVEL)	756
WEST SIDE (GRAVEL)	65
TOTAL	2,978



CSI east side parking lots

Nonetheless, the College community faces limited choices for access and most are still dependent on driving to get to and from the campus. In 2008-2009, 57% of students requested parking permits and 97% of faculty and staff. Parking is an important issue for the campus community. There are 3,000 existing spaces for a campus community of over 14,000. The number and distribution of spaces is considered by many at CSI to be inadequate currently. Members of the campus community note the “car culture” that has developed in Staten Island. This has resulted in large part from the lack of subway service and its remoteness from other boroughs. Providing effective, realistic, sustainable alternatives to access the campus, while recognizing realities beyond the campus, is an important element of Master Plan Amendment. These strategies are described in the following chapter on the Plan and proposed improvements compared to existing conditions.

F. Campus Character

The scale and openness of the campus are its most distinguishing characteristics. At 204 acres and approximately half a mile wide and three quarters of a mile in length, north to south, it is the largest college or university campus in New York City. The clear formal organization of the campus, inherited from the Willowbrook plan and adapted to CSI’s specific functions, provides a strong but flexible framework to guide future growth. The large distances also present challenges for operations and wayfinding.

G. Topography and Slopes

The campus, while generally perceived as flat, slopes gently down 150 feet in elevation from the high point near the south entrance to the main entrance at Victory Boulevard in the north. There are steeped areas near the periphery of the site where water courses have scoured ravines.

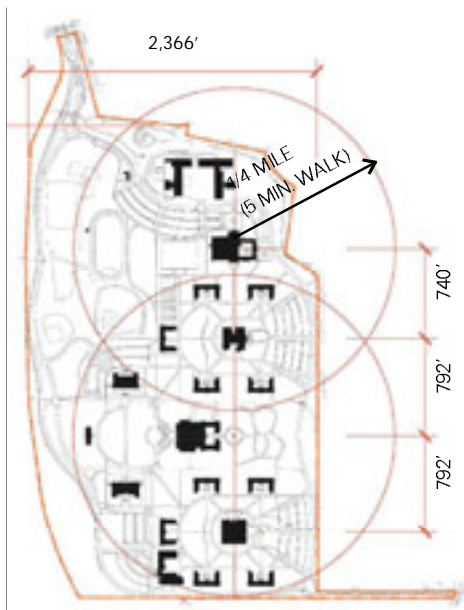


Figure 7: Staten Island Campus Area / 204 acres

H. Soils

Available geological and test boring information suggest that campus soils have high levels of clay and silts. This is significant because these soils do not allow much rainwater to permeate, resulting in greater runoff and erosion. The expansive nature of clay can also create a premium for designing structural foundations.

I. Hydrology

Controlling water on the site is a challenge. Many roads lack curbs to control runoff, resulting in erosion along the shoulders. Some buildings, such as the Sports and Recreation Center, have problems with water infiltration. This facility appears to be on the site of a former stream according to studies done by CSI Geology Professor Alan Benimoff.

J. Wind

Sited on the west slope of one of the highest ridges on Staten Island, the campus is subject to strong winds at times. Many areas have not been sheltered by buildings or trees. Increasing wind breaks by landscaping and clustering of new buildings would be beneficial in creating more sheltered outdoor settings.

K. Views

Views are primarily internal since the campus is largely surrounded by trees. Of the many verdant areas, the view across the Great Lawn, the symbolic and ceremonial heart of the campus, are perhaps the most impressive. The more formal view down Alumni Walk, the campus "main street" is also compelling and emblematic of the College. Views along the east edge of the campus, however, are less attractive because of the abrupt transition to the vacant institution buildings at IBR, separated by a chain link fence.



The Great Lawn



Alumni Walk

L. Formal Organization

The campus has a strong physical organization and geometry. Mostly, this organization is linear and rectilinear, as exemplified by north-south axis of Alumni Walk. The clusters of the north and south academic quadrangles are clearly defined, as is the cluster of administrative and student service buildings around the Great Lawn. Future development should work within the best aspects of the underlying campus framework, while avoiding excess formal rigidity. Fortunately the current framework provides much flexibility.

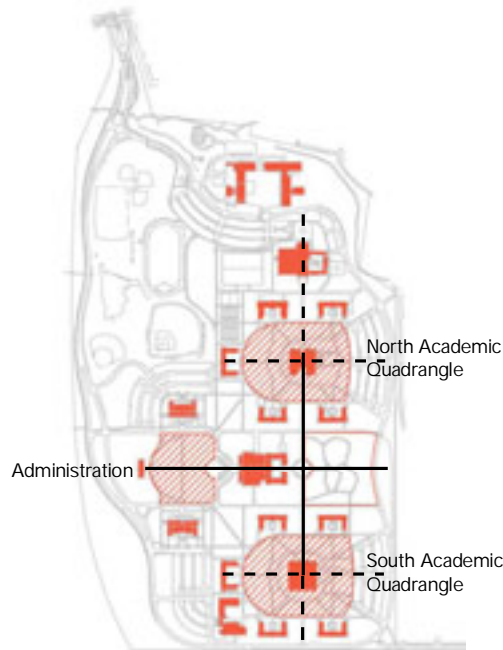


Figure 8: Campus Structure

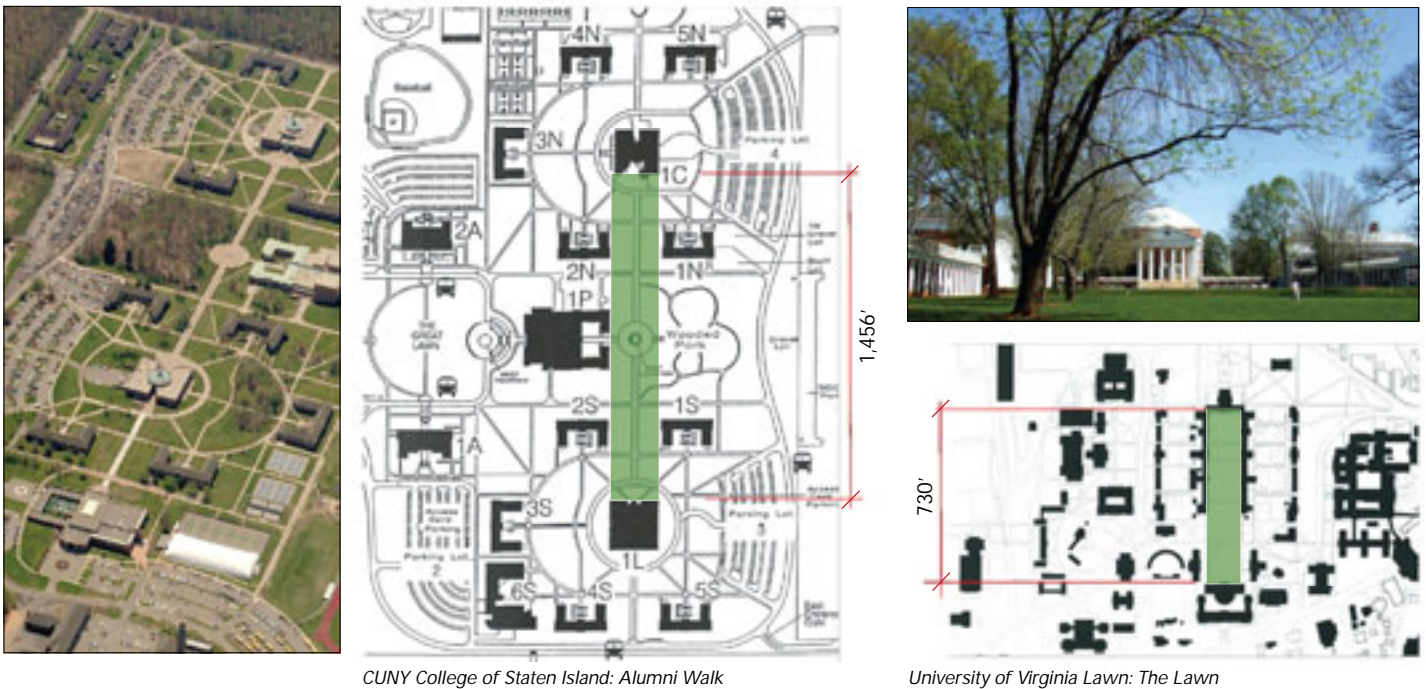
M. Wayfinding

Wayfinding is problematic at the College of Staten Island for both visitors and new members of the campus community. CSI lacks an effective signage system to orient those arriving by car. Signs refer to parking lot numbers, not recognizable destinations. Once on foot, there are few campus maps. The building identification system of numbers and letters can also confuse since the building function is not often evident. Improving wayfinding and signage is a high priority, as described in the Master Plan chapter following.



N. Scale and Development Density

As a young institution spread over a large area, CSI is a low density, low-rise campus compared to most colleges. Contrasting the scale of the iconic Lawn at the University of Virginia to the scale of development at the College of Staten Island in the scale comparison below is particularly revealing. It not only demonstrates the dispersed nature of the current development but also provides an insight for how future, more closely spaced development can frame more intimate, welcoming outdoor spaces. Better connecting the north and south campuses, was consistently noted as a goal for the campus



CUNY College of Staten Island: Alumni Walk

University of Virginia Lawn: The Lawn

Figure 9: Scale Comparison

O. Landscape Character

The landscape of the CSI campus is largely characterized by lawns with a wooded campus perimeter. The resulting effect is an attractive, but fairly uniform appearance. The campus lacks diversity in its plantings. Remaining woodlands are in poor health due to several factors, including compaction, erosion, and tight budgets for grounds maintenance. Small pockets of landscape in some cases are disconnected and out of scale.

There is an opportunity in the master plan to show how additional planting can reinforce the identity of outdoor spaces, similar to the original 1986 master plan. Planting trees can define pedestrian circulation, enhance the campus entry, frame views, and reintroduce habitat. Planting trees in parking lots, in keeping with the NYC Department of City Planning sustainable parking guidelines, can also help to shade and cool these areas and improve aesthetics. New plantings can also create wind breaks and increase biomass and habitat.



Landscape characterized by empty high maintenance and expansive lawn



Opportunity to connect destinations on campus



Parking lots - potential for low mow grass and tree plantings



Seating needed to create gathering spaces



Woodlands suffer from incursion



Map of Staten Island's Green Belt



Meadow areas at the campus periphery could reduce the amount of high-maintenance lawn. In a broader sense, this strategy could tie the campus into the surrounding Staten Island Green Belt, as part of a holistic natural system.

P. Gathering Spaces

Creating attractive gathering spaces on campus will be important for enhancing campus life. Few currently exist. There are a number of opportunities to create these spaces, such as along Alumni Walk, or by refurbishing the current courtyards in the academic buildings. Until recently, students were not allowed on the Great Lawn. Opening this for student use has already increased activity and a sense of welcome and community at this important symbolic space that is also used for commencement, as well as programmed campus and community events.

Q. Community Interaction

The CSI campus is an asset to the surrounding community in several ways. The Performing Arts Center is a cultural and entertainment attraction. Community memberships to the Sports and Recreation Center and Tennis facility help support CSI athletic programs, but also have the effect of reducing opportunities for use by students, faculty and staff. Athletic fields are used by the community at times for recreation when not being used by the College. Finally, the campus loop road is used by some in the community as a short cut to reduce travel time.



R. Servicing

Large and small service vehicles use both campus roadways and paths, mixing with pedestrians. Clarifying service circulation in order to create a more pedestrian friendly campus and enhance safety is another goal for the Plan. CSI has already taken recent steps to prescribe routes for larger service vehicles.

S. Architectural Character

The institutional Georgian brick architecture of the original Willowbrook facilities largely defines the character of the College of Staten Island campus. Six major new buildings, purpose-built in 1993, compliment the original buildings and introduce other materials – mostly masonry block and window walls - to provide a more contemporary expression. These same materials are used in the additions to the academic buildings to provide a cohesive and attractive architectural language. These ten nearly identical academic buildings (adapted from Willowbrook dormitories) create an impression, however, that is repetitive and institutional.

The College is exploring a more contemporary architectural expression in masonry, in the proposed new campus housing, as a result of campus outreach, which recommended not simply following the vocabulary of the original brick buildings. The character of future buildings should respond to and respect the context of the campus in the broadest sense, but reflect that the College is a dynamic, contemporary institution which is in the process of growing and evolving.



The Center for the Arts, Building 1P



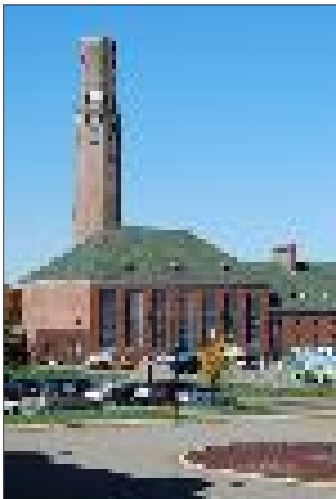
Typical View of an Academic Quadrangle

T. Building and Site Condition

To inform the Master Plan Amendment, the College of Staten Island Campus Planning Department, prepared and provided a multi-volume Building and Site Condition Assessment to Cooper, Robertson & Partners. The purpose of this report was to identify, document, and evaluate the existing building systems at the College of Staten Island, and their affect upon the present and anticipated utilization of these facilities.

In general, the exterior envelop for most buildings is in satisfactory condition, with some exceptions of some buildings with flat roofs. Interior finishes in many buildings are in need of renewal. Some buildings need significant renovations. Some of these projects are in planning or construction, such as improvements to Building 6S, Chemistry and Biology and repairs to Building 1R, the Sports and Recreation Center. Others will be addressed through state-of-good-repair funding, 5-Year Capital Requests and in some cases, in projects proposed in the Master Plan Amendment. A significant new maintenance initiative is providing complete gutter systems to all academic buildings, which have incurred water damage in the past in lower level spaces from run-off, impacting the ability to use these spaces.

The condition of site elements – sidewalks, stairs, railings, ramps, roads and parking lots – is generally less satisfactory. Use of walkways by service vehicles and erosion has caused deterioration. CSI has commissioned a comprehensive condition study for outdoor hardscape areas, recently-completed. Its overall budget recommendations have been incorporated into this master plan. For a more detailed account of building and site condition, see the Appendix.



Central Plant, Building IM

U. Infrastructure

The condition and reliability of the campus infrastructure, to support research in particular, emerged as a key issue in the campus program interviews. While the campus is only 17 years old, its underlying infrastructure, designed for a different use, is over 65 years old. A separately commissioned NYPA Energy and Utility Master Plan, summarized in the Appendix, addresses many of these issues for electrical, gas, heating, cooling, water, and sanitary infrastructure at the central plant. The study also addressed the campus distribution systems, and included a general assessment of MEP systems within the buildings. In the near term, significant campus-wide energy savings will be soon be realized through implementation of recommendations in this study for major renovations to Building 6S to reduce excessive air changes in laboratories. Other recommendations from this study for campus infrastructure improvements are included as appropriate in the master plan amendment budget later in this document.

Managing stormwater is a key aspect of the master plan amendment. The NYDEC has determined that no additional peak runoff discharge will be allowed in the existing detention basin. The construction of new buildings and pavement will increase stormwater runoff. Strategies for employing sustainable, low intensity development best management practices are included in the Plan.



Figure 10: Zoning

V. Zoning Considerations

The College of Staten Island occupies a single lot in a residential R3-2 zone. CSI is a permitted community facility use. Zoning requirements for this zone do not constrain additional growth in the next 10-year period. The permitted maximum floor area ratio (FAR) is 1. Based on the existing campus site area of approximately 8,886,000 square feet and the existing gross floor area of approximately 1,339,500 square feet, considerable additional floor area can be added. At existing coverage of 5.8%, the maximum coverage of 35% likewise is not a constraint. All new proposed new construction is clear of 25-foot front yard setback. Maximum height in this zone is defined by a sloping sky exposure plane, constructed from the property line, which effectively does not constrain the height of development at the campus interior since high-rise projects are not anticipated and would be inconsistent with the campus character.

W. Building and Space Inventory

There are a total of 22 buildings on the CSI campus, each identified by a code as well as a name which describes its departments. Of these buildings, 7 representing 35% of the total assignable floor area are purpose-built for use by the College in the 1990s. The other 15 buildings with 65% of the ASF represent former Willowbrook buildings adapted for higher education use. The largest building in gross floor area is the Center for the Arts, 1P at the center of the campus at 140,857 GSF (78,103 ASF). The Library has the most assignable floor area at 93,825 ASF (118,231 GSF), reflecting the more efficient net to gross ratio of this building type. The smallest building, 6N, the Observatory is located adjacent to the athletic fields and is 576 GSF.

KEY

- Original Willowbrook Building
- 1993 Building

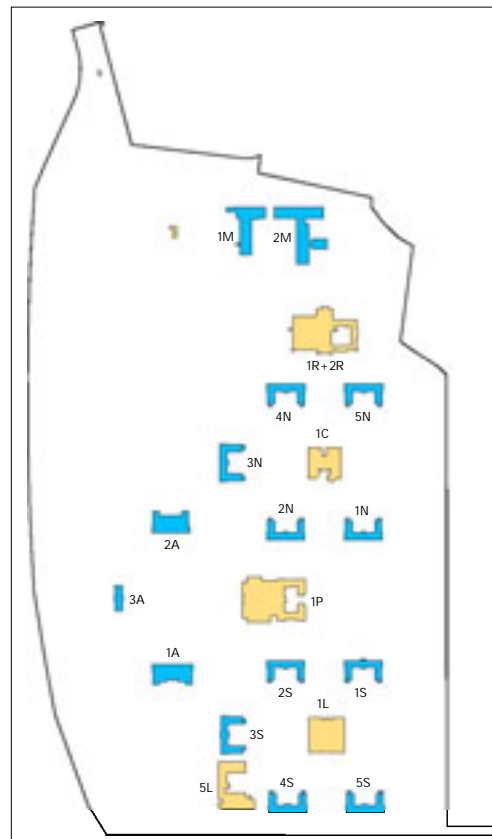


Figure 11: Existing Building Inventory

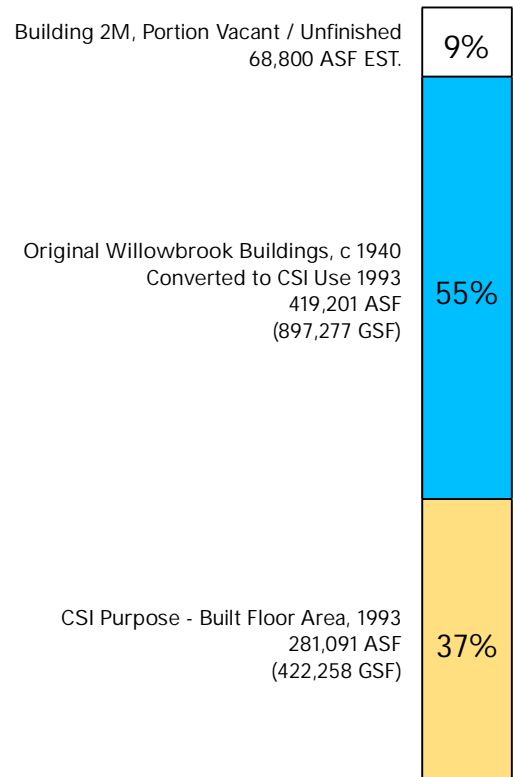


Figure 12: Existing Summary

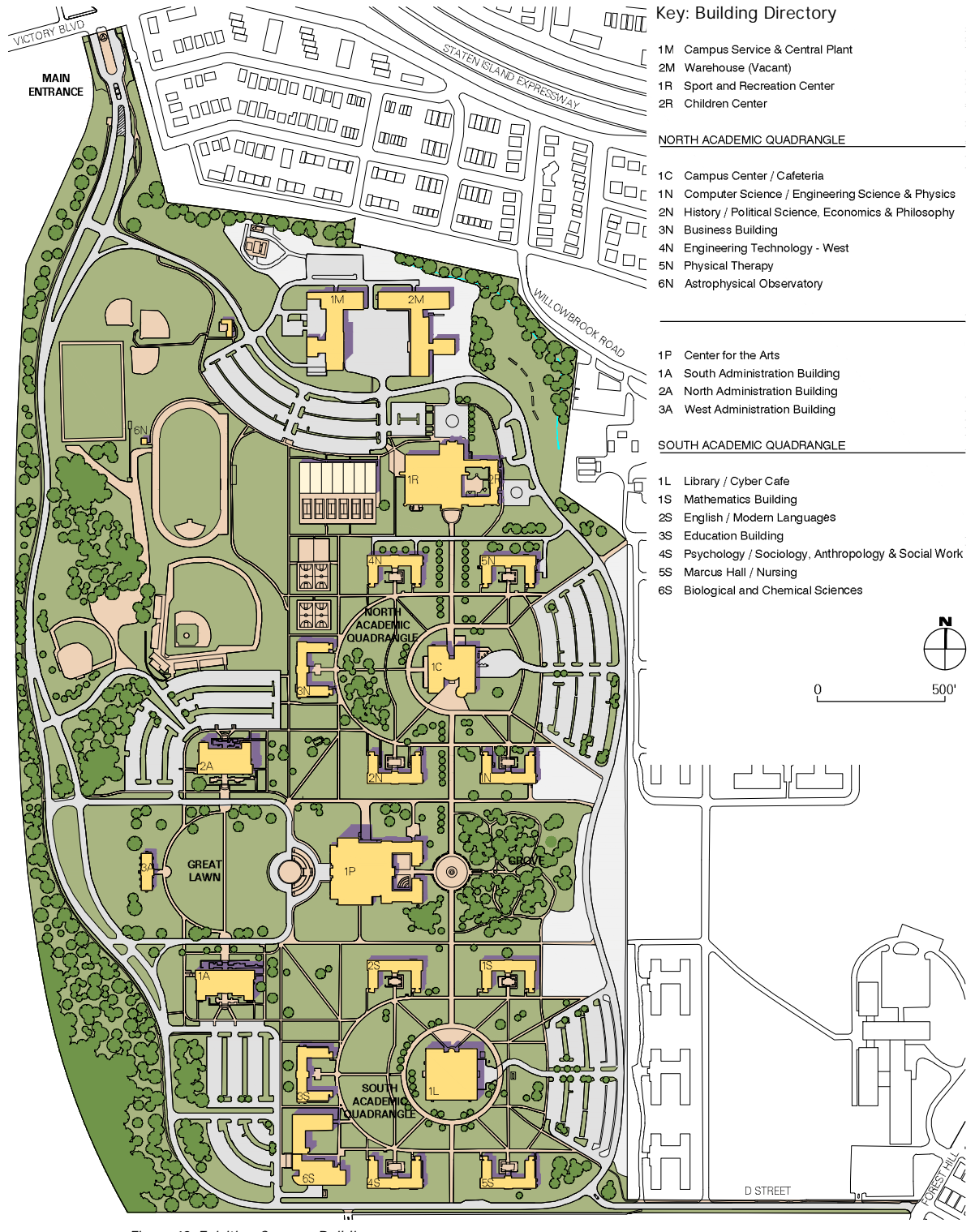


Figure 13: Existing Campus Buildings

Figure 14: Existing Building Inventory

<u>Code</u>	<u>Building Name</u>	<u>NASF</u>	<u>GSF</u>	<u>Efficiency Ratio</u>
Campus Service/Recreation				
1M	Campus Services & Central Plant	40,376	68,633	59%
2M*	Warehouse (vacant)	88,718	121,960	73%
1R+2R	Sports & Rec. Cntr + Children's Cntr	55,063	77,688	71%
North Academic Quadrangle				
1C	Campus Center	40,430	67,932	60%
1N	Applied Computer/Engineering Sciences	21,813	44,766	49%
2N	History/Political Science/Economics & Philosophy	21,925	44,262	50%
3N	Business Building	27,252	48,434	56%
4N	Engineering Technology – West	22,058	44,531	50%
5N**	Engineering Technology – East	13,326	44,531	30%
6N	Astrophysical Observatory	476	576	83%
Subtotal		147,280	295,032	
Arts/Administration				
1P	Center for the Arts	78,103	140,857	55%
1A	South Administration Building	38,009	76,584	50%
2A	North Administration Building	39,922	80,610	50%
3A	West Administration Building	10,077	19,077	53%
South Academic Quadrangle				
1L	Library/Café	93,825	118,231	79%
1S	Math Building	25,163	44,406	57%
2S	English/Speech & World Literature	21,214	44,288	48%
3S	Education Building	23,724	48,481	49%
4S	Psychology/Sociology & Anthropology	18,332	44,571	41%
5S	Marcus Hall	21,029	44,455	47%
6S	Biology & Chemistry Building	68,257	114,662	60%
Subtotal		271,544	459,094	
TOTAL		746,406	1,339,535	57.4%

* Efficiency ratio is high since building is currently vacant with no corridors.

** Plus 10,080 NASF of high school program space.

When viewed by geographic area, the South Academic Quadrangle has the most space, with over one-third, while the North Quad has the least with 19 percent. The remaining two quads each have just under one-quarter of the total square footage. The following chart depicts the distribution of assignable space by quad.

While the north and south campus appear symmetrical because of their mirrored forms, they in fact are not balanced in terms of function. Not only does the south have more floor area due to Building 6S, Biology and Chemistry, and to the larger size of the Library compared to the Campus Center, but more significantly it has many more seats for instruction and study, as shown in the table below. This creates a notable unbalance in the campus. This particularly effects physical access since there is more parking in the north lots (a 5-15 minute walk, depending on location) than the south lots.

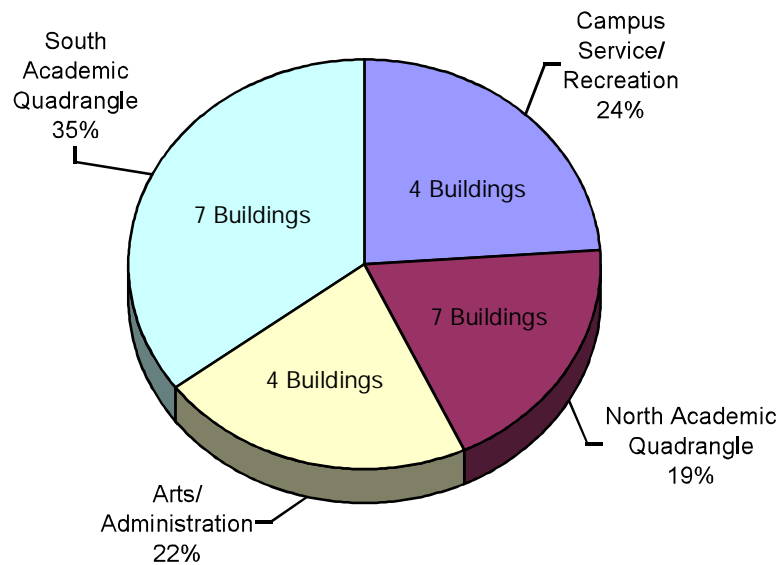


Figure 15: Existing Space by Location

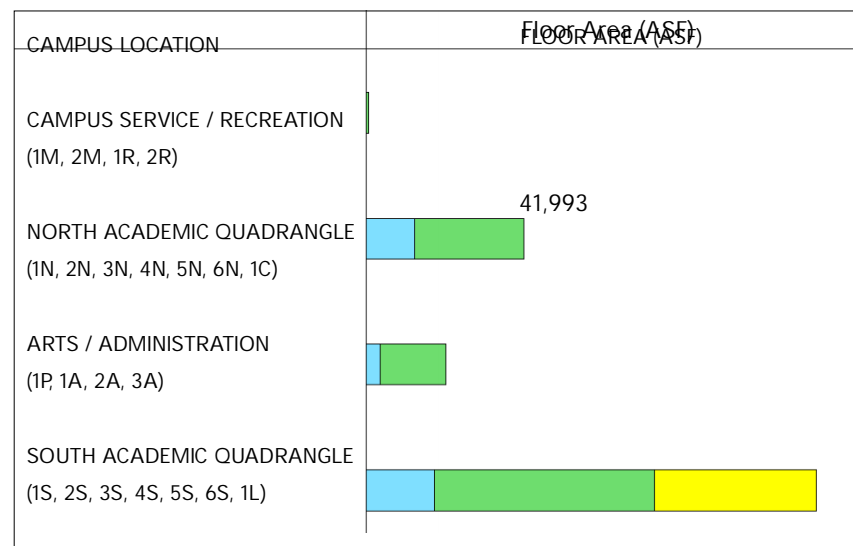


Figure 16: Classroom, Lab and Library Seat Distribution by Quad

X. Space Utilization

The following table reflects CSI's existing space distribution by CUNY space type.

Space Type	Existing Space (ASF)	%
Instructional Space		
Classroom	49,352	6.6%
Laboratory	84,283	11.3%
Laboratory Support & Research	67,445	9.0%
Physical Education	46,855	6.3%
Academic Office	78,467	10.5%
<i>Subtotal, Instructional</i>	326,402	43.7%
Support Space		
Administrative Office	78,462	10.5%
Student/Faculty Service	76,850	10.3%
Library / Study	73,152	9.8%
Assembly	34,300	4.6%
Campus Services	67,916	9.1%
Non-Institutional Agencies	606	0.1%
<i>Subtotal, Support</i>	331,286	44.4%
<i>Subtotal: Occupied</i>	657,688	88.1%
Vacant (Building 2M)	88,718	11.9%
Total (ASF)	746,406	100%

Figure 17: Existing Assignable Space

These totals reflect several deficits when compared to the typical range of space found at other senior colleges and universities. Classrooms at 6.6% of the total assignable area are at the low end of the range of 6 to 12% found typically. Laboratory together with support and associated research space reflects 20.3% of the total, again at the low end of the typical range of 20 to 30% for this space type. Library / Study space represents 9.8%. A typical percentage is between 6 to 12%. Academic and administrative offices represent a significant portion of space (21%). Offices typically occupy from 20 to 30% of assignable space. The vacant Building 2M represents a significant opportunity to increase usable space, at almost 12% of the total assignable space.

Space types tend to be clustered in different areas of the campus. For instance, half the instructional space (classrooms and laboratories) are in the South Academic Quadrangle. Using NCES space categories, the distribution of spaces on campus is shown on the table below. The Campus Service / Recreation precinct includes Buildings 1M, 2M, 1R and 2R. The Arts / Administration precinct includes Buildings 1P, 1A, 2A, and 3A.

Space Type (Existing)	Campus Service / Recreation	North Academic Quadrangle	Arts / Administration	South Academic Quadrangle
Classroom	0%	37%	11%	52%
Laboratory	1%	28%	17%	55%
Office	5%	19%	46%	30%
Study / Library	0%	0%	0%	100%
Special Use	90%	2%	5%	3%
General Use	8%	39%	47%	6%
Support	52%	7%	7%	34%
Healthcare	0%	100%	0%	0%
Unclassified / Vacant	100%	0%	0%	0%

Figure 18: Existing Space by Location

There are ten organizational areas at CSI. The following table shows their space distribution.

Organizational Area	Existing NASF	%
President	6,259	0.8%
Deputy to the President for Admin. Services	69,052	9.3%
Humanities & Social Science	102,568	13.7%
Science & Technology	129,568	17.4%
Vice President for Academic Affairs / Provost	147,140	19.7%
Vice President for Information Technology	17,233	2.3%
Vice President for Student Affairs	127,863	17.1%
Vice President for College Advancement	2,170	0.3%
Vice President for Finance & Administration	52,704	7.1%
Unassigned / Vacant	91,849	12.3%
Total	746,406	100%

Figure 19: Existing Space by Organizational Area

The table on the following page shows the distribution of space by academic department. The distribution is based on the 232,404 square feet assigned to each specific academic area. Space assigned to academic departments includes offices and classrooms or laboratories that are “owned” or scheduled by the department. Performing & Creative Arts occupies 15% of the space assigned to academic departments. A large part of this space is theater and related support space, the dance studio and art studios. Biology and Chemistry also occupy a substantial amount of space, because their assigned spaces include instructional and research laboratories.

ACADEMIC DEPARTMENT	NASF	% of Total*
HUMANITIES & SOCIAL SCIENCE		
Dean of Humanities & Social Science	1,615	1%
Business	13,135	6%
Education	10,020	4%
English, Speech, & World Literature	9,478	4%
History	4,294	2%
Media Culture	7,102	3%
Modern Languages	3,718	2%
Performing & Creative Arts	34,859	15%
Political Science, Economics, & Philosophy	4,197	2%
Psychology	11,384	5%
Sociology, Anthropology, & Social Work	2,573	1%
Women's Studies	274	1%
Subtotal	102,568	44%
SCIENCE & TECHNOLOGY		
Dean of Science & Technology	712	1%
Biology	31,218	13%
Chemistry	24,889	11%
Computer Science	10,600	5%
Engineering Science & Physics	19,363	8%
Engineering Technology	9,253	4%
Environmental Science	2,180	1%
Institute of Basic Research	621	1%
Mathematics	10,083	4%
Neuroscience	6,723	3%
Nursing	11,712	5%
Physical Therapy	2,482	1%
Subtotal	129,836	55%
TOTAL	232,404	100

* May not add up to 100% because of rounding

Figure 20: Existing Academic Department Areas

Y. Instructional Space

This section summarizes existing conditions for general classroom space and specialized instructional space, based on analysis done for the 2006-07 academic year. More detailed information can be found in the Appendix.

CSI has a significant current deficit of general classroom space. Considering utilization, occupancy and station size (see Appendix), CSI would need an additional 55 to 60% of net floor area for general purpose classrooms to meet the need for the 2006-07 enrollment. Since then, enrollment has increased. The campus has 83 general purpose classrooms totaling 48,586 ASF and encompassing a total of 3,705 stations. Station sizes range from 11.8 ASF (Building 5S-125) to 26.1 ASF (Building 3N-103) and average 13.1 ASF. Few of these stations have fixed seating. In comparison, CUNY guidelines range from 13 ASF for lecture halls with fixed seating to 20 ASF in seminar rooms. An average of 20 to 25 net assignable square feet per station is commonly recommended based on industry standards for a typical flat floor classroom.

Of the 83 general purpose classrooms, the majority are mid-size, with 19 classrooms at 30-39 stations, 37 classrooms at 40-49 stations, and 15 classrooms at 50-59 stations. These are mostly without fixed seating and therefore undersized for this station capacity. In contrast to many other colleges and universities, there are very few large lecture halls available for instruction. Only one lecture hall with 100 seats or more is available for instruction at CSI. There are 4 classrooms in the 90-99 station range, with the next largest being 2 classrooms with 60-69 stations. If the College were to reconfigure seating in existing spaces to “decompress” and be more in line with current station sizes, the capacity range would decrease.

Course sizes reflects the classroom inventory. The mean enrollment is 32 students while the most common enrollment is 28. 75% of courses have an enrollment of 39 or fewer, in contrast to the room sizes where 30 percent of the rooms seat 39 or fewer. Only 5% of the courses have an enrollment of 50 or higher. Average occupancy was 69% in 2006-07. In comparison, CUNY’s goal is 80%, while a current standard is 67%.

While evening classroom use is heavy, daytime use is the main driver. In 2006-07, the majority of courses (89%) were scheduled on single days. As typical for many campuses, CSI has a distinct decline in scheduling for Friday as shown in the table on the following page. Reasons for this are several, including student work demands, faculty contracts allowing for off-site consulting, and student and / or faculty preference to have condensed one-day courses during the week to minimize commuting time to campus. The percentage of course meetings by day of the week for general classroom space is shown in the following table.

Meeting Day	Day Courses	% Day Courses
Monday (M)	227	21%
Tuesday (T)	231	21%
Wednesday (W)	194	18%
Thursday (R)	196	18%
Friday (F)	127	12%
MTF	1	<1%
MW	55	5%
MWR	1	<1%
MR	4	<1%
WR	3	<1%
TR	21	2%
TRF	1	<1%
TF	30	3%
TOTAL	1,091	100%

Figure 21: Distribution of Day Courses by Day of Week

CSI has 66 specialized instructional spaces, encompassing 65,771 total assignable square feet and 1,802 student stations. The stations represent a combination of movable and fixed seating. Station sizes range from 12.5 ASF (Building 2S-118) to 254 ASF (Building 4N-220), and average 36 ASF. Compared to CEFPI guidelines for various disciplines, noted below, CSI has a significant current deficit - approximately 48% - of specialized instruction / research space.

<u>Discipline / Specialized Instructional Space</u>	<u>ASF / Station</u>
Social Sciences / Humanities / Computer Sciences	40
Physical Sciences / Allied Health / Fine and Applied Arts	60
Electrical Engineering / Physical Fitness	80
Civil Engineering / Dance	100

The majority of the 66 specialized instructional spaces hold between 20 and 39 stations. CSI station occupancy rates for specialized instructional space was 75% (2006-07), modestly below the CUNY goal of 80%, however this may be skewed by some rooms that are frequently overfilled. Utilization of specialized instructional spaces on Fridays is 10%, compared to 23% for Monday and Wednesdays, 25% Tuesdays and 19% Thursdays.

III. PROGRAM FOR GROWTH

III. Program for Growth

A. Introduction

Since moving to its current location in 1993, CSI has experienced growth in many areas. The new consolidated campus site was expanded with the construction of six new buildings. Beyond the initial physical growth of the campus, CSI has more recently grown enrollment, faculty, and academic programs. A specific goal for the near future is the development of residence halls.

Over 12,000 students enroll at CSI each year, up from 10,500 in the mid-1980s. Staten Island's increasing population has played a role in this growth. Since the late 1990s, student admission standards were raised resulting in the improvement of the overall student profile. CSI is focused on increasing enrollment by attracting qualified students from a broader geographical area. The commitment to this goal is evidenced in the development of the Verrazano School at CSI, which will offer separate classes and additional research opportunities for 950 high-achieving students.

In addition to increasing student enrollment, CSI has been increasing full-time faculty. The College has added distinguished new faculty members each year for the past several years. Many of these faculty members have research agendas that require research space. The enhancement of faculty research is a priority for CSI, and will require sufficient research space, particularly in the sciences.

Over the past decade, CSI has reconfigured its academic programs to meet the needs of current and potential students. While many technically-oriented associate programs were discontinued, new master's and doctoral programs were added. The teacher education, science, and health science programs are thriving and a number of research institutes and centers were added, including the Center for Environmental Science and the Discovery Institute. Science research space will be a key to successfully enhancing graduate education.

The development of on-campus housing will provide a foundation to meet two strategic objectives of CSI: improved recruitment opportunities and expanded campus life. The availability of low cost residential housing will aid in the recruitment of highly qualified students – specifically graduate students and postdoctoral scientists. Housing will also expand the geographical radius from which to draw high-achieving students. The renewal of campus life is expected to hinge directly on the design and construction of residence halls.

The Master Plan is intended to develop campus facilities that respond to the changing student body, faculty needs, and academic programs. It will address the needs of the College today, as well as anticipated needs as the College evolves in the future.

B. Process

The Program for the CSI Master Plan Amendment reflects considerable consultation and refinement. The programming process began in 2007 with extensive analysis of existing space use, classroom utilization and enrollment. The consultant team also conducted multiple interviews to understand program objectives. Following the introduction of a new President, the project went on hiatus and re-started in 2009. The program was updated to reflect revised enrollment projection figures, approved by CUNY and to reflect interviews with senior administration. The updates also reflect revised personnel data provided by the Office of the Provost, to ensure that space demand calculations are based on the most recent data available. Together, this information was used to develop a recommended long-term program, to bring the size of College facilities more in line with its peers for a campus of this planned enrollment.

With the national and global financial crisis and resulting strain on New York State funding, the planning team recognized that the all development needed to implement the entire long-term program would not be feasible in the 10-year period of this Master Plan Amendment (2018/19). For this reason, a range of potential development initiatives were considered. From these, projects that address the College's most urgent facility needs for academics, research and student life were identified and approved at the end of the Master Plan Alternatives Phase in December 2009. The program below represents the expansion provided in these development projects, as well as re-organizations and major renovations to improve connectivity and operational efficiency. The program assumptions for each development project are described in the following chapter, the Master Plan Amendment.

C. Current and Projected Enrollment

The revised enrollment projections provided through 2019 indicate that CSI is experiencing a significant period of enrollment growth. The time that elapsed between the initial analysis of enrollment in 2007 and the resumption of the Master Plan process in 2009 has confirmed these trends and produced some interesting changes in projections.

- At the undergraduate level, almost all programs have grown, and programs that had dominating enrollments have continued to grow proportionately.
- At the graduate level, enrollment has declined slightly, and the updated projections indicate that the College has revised downward expectations for growth in graduate program enrollment.

In addition, two main areas of potential impact on future space needs for the institution was identified. It is suggested that CSI should review these closely during the implementation of the Master Plan Amendment.

1. While the FTES projection is critical to developing a Master Plan that will anticipate future space needs, as is clear from this analysis, the proportion of full- and part-time headcount is also a key to accurately assessing space use. The College should continue to review the shift to full-time undergraduate students to see how actual conditions compare with these projections.
2. The impact of expansion of the international programs, and the increased academic preparedness of undergraduate students should also be tracked for the impact on English and Mathematics, which are responsible for many of the service courses.

With the analysis provided, and the active tracking of those areas which impact space needs, the College should be well equipped to determine the priorities for its future growth and plan accordingly.

To support continuation of the master planning process, after a two year hiatus, the College provided updated enrollment data through Fall 2008 actual enrollment. The College also revised its enrollment projections through 2019 to reflect recent growth and the development of new strategic goals. Figures 5, 6, and 7 from Section 3.2 have been replicated below using the updated actual and projected enrollment.

Figure 22: Current and Projected Undergraduate FTES by Program

Program	2008 FTES actual	2019 FTES projected	Percent Change
Art and Music	498.4	668.1	34.0%
Biology	571.3	777.7	36.1%
Business and Information Systems	859.3	1,093.1	27.2%
Chemistry	178.1	250.5	40.6%
Communications	405.1	570.5	40.8%
Computer Science	206.4	318.0	54.1%
Education	181.1	208.8	15.3%
Engineering Science and Physics	458.5	647.3	41.2%
English	1,214.6	1,731.7	42.6%
History	358.8	507.9	41.5%
Interdisciplinary Programs	733.4	1023.7	39.6%
Mathematics	1,218.7	1,592.7	30.7%
Modern Languages	418.5	591.2	41.3%
Nursing and Health	277.2	451.7	62.9%
Political Science/Philosophy	741.1	956.9	29.1%
Psychology	526.2	777.9	47.8%
Sociology, Anthropology, Social Work	590.5	761.7	29.0%
Total Undergraduate FTES	9,437.20	12,929.40	37.0%

The College projects a 37 percent increase in undergraduate FTES production between Fall 2008 and Fall 2019. The programs showing the highest anticipated increases in FTES production are Nursing and Health (62.9%), Computer Science (54.1%), Psychology (47.8%), English (42.6%), History (41.5%), Modern Language (41.3%) and Engineering Science/ Physics (41.2%).

While the original projections to 2015 contained estimates that three undergraduate programs would experience declining enrollment, the new projections to 2019 estimate that only Art, in the division of Art and Music will lose enrollment.

According to the revised projections, CSI anticipates a 50.6 percent increase in graduate FTES production between Fall 2008 and Fall 2019. While the percent of change is shown for comparison purposes in the table, it must be noted that the smaller enrollments in graduate programs distort the percent of change. It should also be noted that the percent of increase in the revised projections is based on a lower graduate enrollment in Fall 2008 (462.1) than in Fall 2006 (512.4), and that the new projections do not include Mathematics and also Liberal Studies, which has been distributed among other programs.

Figure 23: Current and Projected Graduate FTES by Program

Program	2008 FTES actual	2019 FTES projected	Percent Change
Biology	2.6	2.5	-3.2%
Business and Information Systems	19.1	25.4	32.8%
Computer Science	22.1	36.2	63.8%
Education	289.2	404.1	39.7%
English*	42.0	38.2	-9.1%
Environmental Science	17.5	23.4	33.5%
History*	16.4	22.5	37.1%
Media Culture/Dramatic Arts	14.1	12.4	-12.4%
Neuroscience	16.1	24.0	40.2%
Nursing and Health	19.0	29.2	53.6%
Physical Therapy	0.0	56.8	n/a
Psychology	0.0	16.7	n/a
Sociology/Anthropology*	4.0	4.6	14.5%
Total Graduate FTES	462.1	696.0	50.6%

*Programs include Liberal Studies.

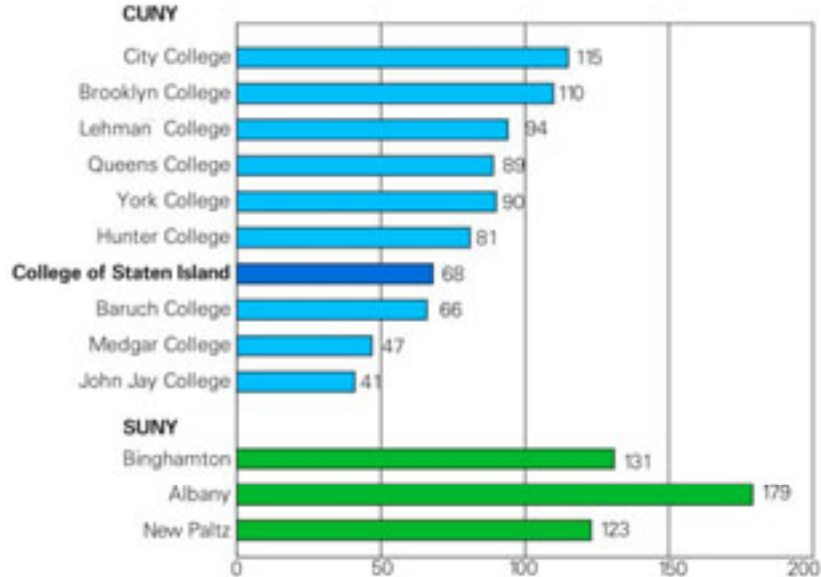
In Fall 2008, three programs, Business, English, and Mathematics were responsible for generating over one-third (34.9%) of the total FTES at the undergraduate level. This is a slightly smaller percent of total FTES than in 2006, but still a significant proportion. Fall 2019 projections show these three programs again contributing over one-third of total FTES (34.2%). At the graduate level, Education is the dominating program in terms of FTES production, having produced over half (62.6%) of all graduate FTES in Fall 2008. This dominance has increased since Fall 2006, but is projected to decline slightly by Fall 2019 when it is projected to represent 58.1 percent of total graduate FTES. Another point of interest is that while graduate FTES comprised 4.6 percent of total FTES in Fall 2008, that portion rises to 5.2 percent in the projection data for Fall 2019, which is still below the 2006 rate of 5.5 percent.

D. Benchmarking

The College has 1,339,535 gross square feet of development distributed in 21 existing buildings. This provides 657,688 occupied assignable square feet (plus 68,718 ASF of unoccupied warehouse space in Building 2M, to be repurposed and occupied in this plan). Comparing enrollment to occupied space, CSI had 71 ASF/FTES in 2006-07. For the 2008-09 enrollment, this figure drops to 68 ASF/FTE.

In the long-term, CUNY would recommend that CSI facility expansion provide 90 ASF/FTES to meet goals for academics, research and support, and to bring CSI more in line with other CUNY senior colleges and peer institutions. This would represent approximately 566,000 ASF of additional floor area (950,000 GSF). Given the economic crisis and resulting budget constraints, however, this plan update reflects a select group of high-priority development projects that provide an estimated 235,000 ASF of additional space through 270,000 GSF of new construction, and fit-out of the vacant 2M Building. This represents a significant increase of 35% in usable floor area. The plan addresses the most pressing space needs for additional classroom, lab, faculty office, library, research and support space.

Figure 24: Benchmarking: Floor Area per Student (FTES)



E. Academic and Research Initiatives

Since moving to the current campus in 1993, the College of Staten Island has grown and distinguished itself, most recently with the opening of the High Performance Computing Center. Finding suitable permanent facilities for this powerful computational resource, now housed in temporary quarters in the Central Plant Building (1M), to support inter-disciplinary research at CSI and CUNY-wide, is a signature element of this Plan. This mixed-use research and academic

building is the Interdisciplinary High Performance Computational Center (IHGCC). The building will co-locate the computational center itself with consolidated academic departments that relate most directly to computational operations for teaching and research, as described more below. The facility will also include flexible, non-dedicated space for inter-disciplinary research to facilitate collaboration. This is especially important because many potential research initiatives will span across disciplines in their scope of inquiry.

Another research initiative is an Imaging Center for Biological and Chemical research. Planning is in progress for an interim facility in the lower level of Building 6S. An addition to this building to provide expansion will allow construction of suitable space for proper research facilities. There is also a need for a new greenhouse for Biological research and teaching. The current greenhouse on the top floor of Building 6S is inadequate in size, design and function.

In order to support academic and research initiatives in other departments, considerable additional space is needed for instruction, laboratories, academic offices and support areas. There is also a considerable need for study / library space and for student support space to assist in recruitment, retention and career placement. Needs for these functions are described below.

F. Program Adjacencies and Efficiencies

In general, the distribution of departments and programmatic functions on the CSI campus is clearly organized. There are three significant opportunities, however, to improve operational efficiency through relocation and/or expansion of functions.

The first opportunity is re-balancing the north and south. Currently, the North Academic Quadrangle has significantly fewer stations for instruction and study. Expanding facilities first in the north would appear to be most beneficial in this respect.

Secondly, while most departments at CSI are in the same building, Computer Science is dispersed among Buildings 1N, 2N and 5N. Engineering Science and Physics is also scattered among Buildings 1N, 4N, 5N and 6N. Consolidating these departments themselves and with each other, could greatly improve a current organizational deficiency. A select number specialized laboratories for Engineering Science and Physics may best remain in their current location given the cost and space implications of relocation.

Finally, there are many functions now in the core of the campus that do not have to be centrally located. Moving these to the campus periphery, such as in Building 2M, can free up space in the core of the campus for functions benefit more from easy access. These functions include select "back-of-house" administrative operations, some computer support functions, and Continuing Education areas which now compete for space at times with degree courses.

Most remaining academic departments now benefit from being located in the same building.

“Wholeness” frequently comes at a cost, however, as many of the departments reported cramped conditions in the program interviews, with no opportunity to expand. Another goal for the Plan is providing opportunity for these departments to expand in place, without the need for costly incremental additions. One strategy to accomplish this would entail provision of additional, shared instructional space nearby, to permit conversion of some obsolete instructional space into academic offices.

G. Projected 10-Year Space Need

The following Space Program reflects the development projects recommended by the CSI Master Plan Steering Committee and CUNY for the next 10-year period to address the College’s most critical facility needs for instruction, research, study, faculty office and professional development, and spaces to support student and campus life. The space allocation reflects considerable discussion of various facility initiatives and their corresponding preliminary space program. Program background for each recommended project is included in the following chapter.

Figure 25: Space Assessment (2018/19)

Space Type	Existing Space (ASF)	10-Year Program (ASF)	% Increase
Instruction and Research Space			
Classroom, Labs, Research, Offices	279,547	380,447	36%
Physical Education	46,855	53,855	15%
Subtotal	326,402	434,302	33%
Support Space			
Administrative Office	78,462	83,617	7%
Student/Faculty Service	76,850	109,149	42%
Library / Study	73,152	121,052	65%
Assembly	34,300	40,300	17%
Campus Services	107,916	128,416	19%
Non-Institutional Agencies	606	606	0%
Subtotal	351,286	468,140	33%
Subtotal: Occupied	677,688	902,442	33%
Vacant (2M Building)	68,718	0	
GRAND TOTAL NASF	746,406	902,442	21%
Student FTE	9,899	13,625	38%
NASF per FTE (occupied areas)	68	66	

Note:

1. Lab Support & Research category includes IHPCC and Imaging Center .
2. Existing FTE represents 2008-2009

H. Projected Long-Term Space Need

In comparison, the recommended long-term program would increase space to provide 90 ASF / FTE. This would represent an overall increase in occupied floor area of 566,500 ASF compared to current conditions, or 86% expansion. Based on existing space, rectifying the current space deficit, providing additional space for the 10-year expanded enrollment, and future academic and research goals, the recommended long-term program would represent the following increases in existing space:

	% Change
<u>Instruction and Research Space</u>	<u>+114%</u>
Classrooms	+130%
Laboratories, Lab Support, Research	+67%
Academic Offices	+228%
Physical Education	+60%
<u>Support Space</u>	<u>+58%</u>
Administrative Office	+4%
Student / Faculty Service	+86%
Library / Study	+78%
Assembly	+29%
Campus Services	-1%

IV. THE MASTER PLAN AMENDMENT

IV. The Master Plan

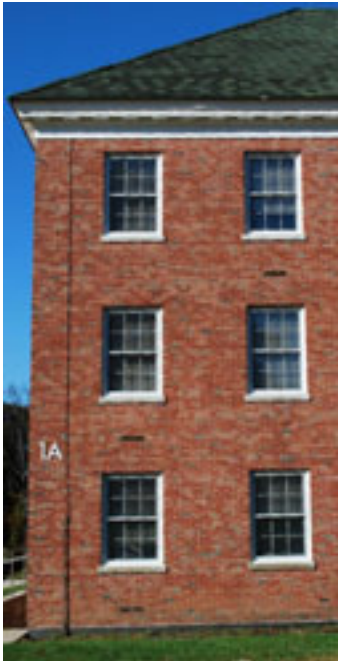
A. Introduction

The Master Plan Amendment (the Plan) represents a series of capital projects to meet CSI's strategic goals and objectives for supporting academics, research and campus life for the next 10 year period. In addition to for projects for new building construction and major renovations, the projects also include important upgrades for campus access, land and infrastructure. These improvements aim to increase operational efficiency and thereby support the core academic and research mission. They also serve to create a more appealing, vibrant and sustainable campus, to support recruiting and retaining well qualified students, faculty and staff.

This chapter first provides an overview of the strategies for recommended changes in program organization for select functions on campus. It follows with a description by campus precinct of each existing and proposed building and recommended projects for programmatic and design improvements, including associated site and infrastructure scope. Recommended landscape projects and guidelines follow. The chapter concludes with recommended projects for general infrastructure upgrades.

B. Organizational Strategy

The organization of the existing campus has a clarity and strength, with a pair of academic quadrangles linked by a core characterized by the arts and assembly functions and by the symbolic heart of the College – the Great Lawn, framed by administrative and student service functions. Recreation and campus support functions anchor the north end of campus, near the main entrance.



Programmatically, the Plan builds on the strength of this framework and enhances it in key ways by:

- Consolidating academic departments that are now scattered, with an affinity for computational teaching and research, into one location in a new state-of-the art facility, the Interdisciplinary High Performance Computational Center (IHPCC)
- Creating a general purpose classroom building in each the north and south academic quadrangles through this vacated space to provide critically needed expanded instruction space
- Moving “back of house” administrative functions to the campus periphery to the vacant Building 2M in order to optimize space in the core for instruction and student services
- Converting Building 3A to serve as a Welcome Center and new public “front door” for the College to prospective students and members of the community in a prominent location at the foot of the Great Lawn
- Providing critical expansion space through a variety of projects for faculty offices, library collections, research, student study, social and support areas, faculty development, and campus services.

These relocation and expansion of functions result in improved efficiencies, connections and relationships for College departments and operations. The resulting organizational diagram for CSI is illustrated on page "" of The Executive Summary.

C. Meeting the Need: Building Projects and Associated Site and Infrastructure Upgrades

This section describes the existing and proposed building facilities in the 10-Year Master Plan. For new construction and major renovation projects, preliminary space program recommendations are summarized and conceptual design considerations described and illustrated. Project scopes include adjacent site work and landscape design, as well as a summary of the infrastructure scope needed to support each project. The plan at left summarizes recommended new construction and major renovation projects in the next 10-Year period, including a campus housing initiative to be funded by a public / private partnership. For comprehensiveness, this section includes all building facilities, including existing buildings with little or no renovation work planned.

D. Summary

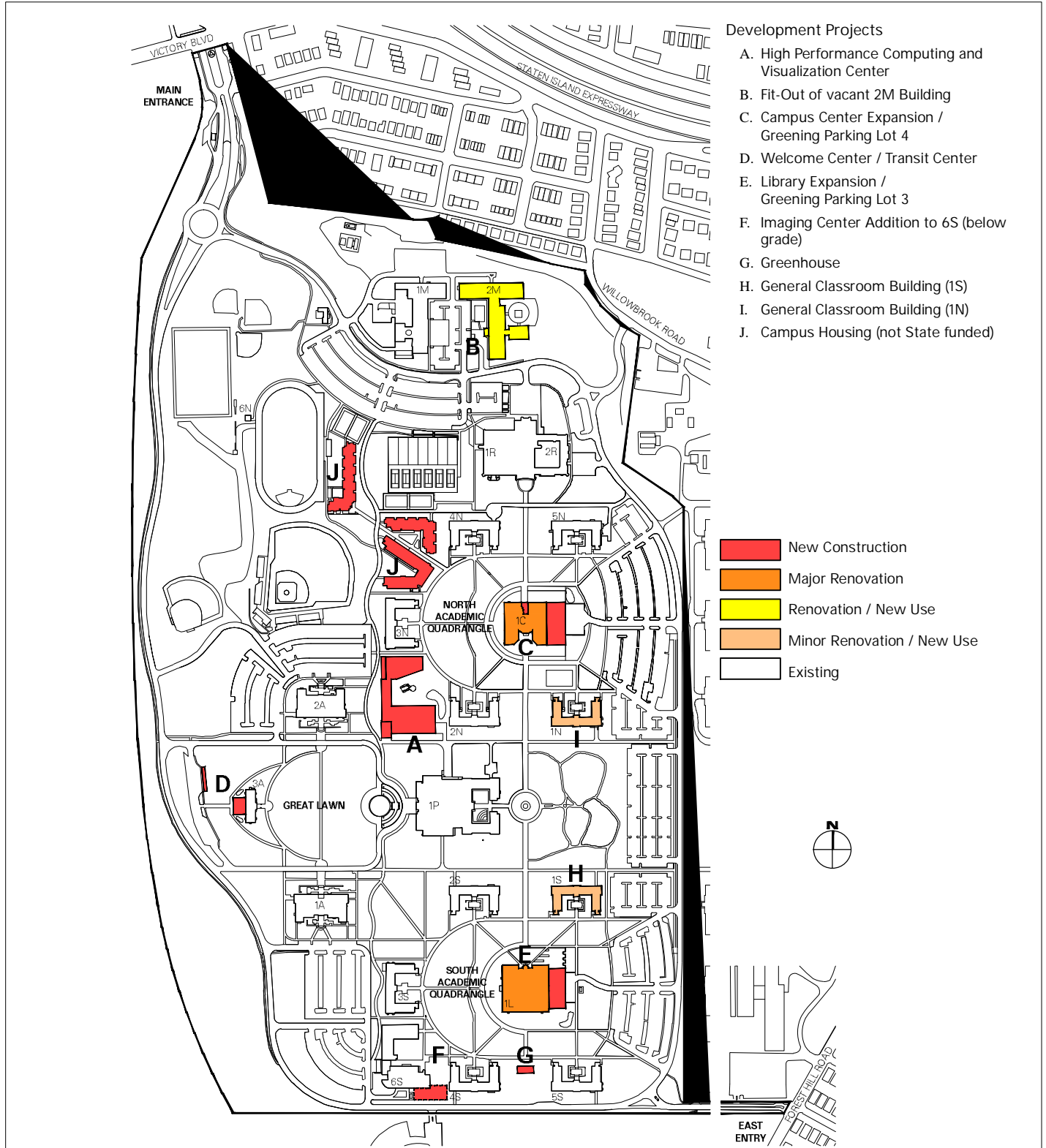
The following sections describe each project in the Master Plan, as shown on the campus plan opposite. Together, these projects provide the additional areas listed in the table below. Since Building 2M exists but is vacant, renovation and occupying of this building increases occupied assignable square feet but not add to the existing gross floor area on campus. Together, these projects meet the 10-year program requirements listed in the previous chapter in Figure "".

Fig. 26 Existing and Added Area by Project

Existing Campus Floor Area	ASF	GSF	Net to Gross %
Occupied Spaces	677,688	1,217,535	56%
Vacant / Building 2M	68,718	122,000	
Total	746,406	1,339,535	56%
Proposed Additional Floor Area			
IHPCC / Mixed-Use Building	100,000	175,000	57%
Building 2M Fit-out	68,718		NA
Campus Center Expansion	18,000	30,000	60% *
Welcome Center Expansion	2,500	4,000	63%
Library Expansion	39,500	50,000	79% *
Imaging Center / Building 6S Addition	4,800	8,000	60%
Greenhouse	2,100	2,100	100%
Subtotal: Additional	235,618	269,100	88%
% Increase	35%	20%	
Total Proposed Campus Floor Area	913,306	1,608,635	57%

* Net / Gross to match existing building to be expanded

Fig. 27 Master Plan Amendment: Building Development



North Academic Quadrangle

This precinct of the campus is the most transformed in the Master Plan, with the addition of a major new research and academic building, a new campus housing development, and an addition and major renovation of the campus center. By consolidating two academic departments now in this quadrangle, along with one from the south quadrangle, into the new IHPCC building, an existing building is converted to a new shared general purpose classroom building to serve all academic departments in the North Quadrangle.

Interdisciplinary High Performance Computational Center (IHPCC)

This new building will be a signature facility for the College as the new home for the super-computer, now temporarily in Building 1M. The building will allow this research facility to grow over time to serve CSI, CUNY and other researchers in the greater New York Area as a major computational resource. A significant portion of the building, 13,000 ASF is dedicated to the Computer Center itself and its directly related support areas.

The College would like to consolidate Mathematics (Building 1S) and Computer Science / Engineering Science / Physics (Building 1N, and portions of 4N) into the IHPCC building, plus some elements of Engineering (Buildings 4N and 5N) if space permits. This will allow these departments with affinities to the center to have good access to this resource and consolidate departments now scattered to improve efficiency. These departments currently occupy approximately 40,000 ASF. The building will also include an allowance of laboratory, academic office and other space for inter-disciplinary research. To address the campus-wide need for more classrooms in a wider range of sizes, IHPCC will include classrooms and some lecture halls. The preliminary IHPCC program recommendation is for 70,000 ASF for classrooms, laboratories and academic office space. The breakdown of space will be determined during subsequent detailed programming for the building.

*Existing High Performance Computer,
Building 1M*



The IHPCC also includes a range of other program spaces, as shown in the table at right, to make the building a hub of activity, promote interdisciplinary collaboration and to provide needed study space and student services.

The gross floor area of this building could be in the range of 175,000 GSF, using the existing campus average for net to gross area. This would be the largest building on campus. The planning team studies various locations and assessed benefits and constraints of each. A consensus emerged that the southwest corner of the North Academic Quadrangle was the best location for several reasons. First, the site is one of the few with adequate capacity for a building this size. Secondly, a new facility here would re-balance the campus which now has significantly more stations in the south academic quadrangle. Finally, the site represents an opportunity to improve the fabric of the physical setting by helping to further frame the Great Lawn, as well as Campus Walk, a reconfigured north-south pedestrian and bicycle route that will help to connect the campus better from north to south.

Fig. 28 IHPCC Program

Computer and Computational Center	NASF
Computer Room	5,000
Operator Room	1,000
Dedicated Mechanical	1,500
Work Areas, Dedicated Storage	2,000
HPCVC staff offices (15), Reception, Conference (20)	3,500
Subtotal	13,000
Academic and Other Research Space	70,000
Including Classrooms, Lecture, Faculty Office, Laboratories, Lab Support for Inter-disciplinary, Mathematics, Comp Sci., Engineering Sci., Physics	
Other Program	
Study Areas	6,000
Café and Support	2,000
Multi-purpose / Conference / Contingency Space	6,000
Student Service (Disability Services)	3,000
Subtotal	17,000
Total Net	100,000



Site Proposed for IHPCC, at Right

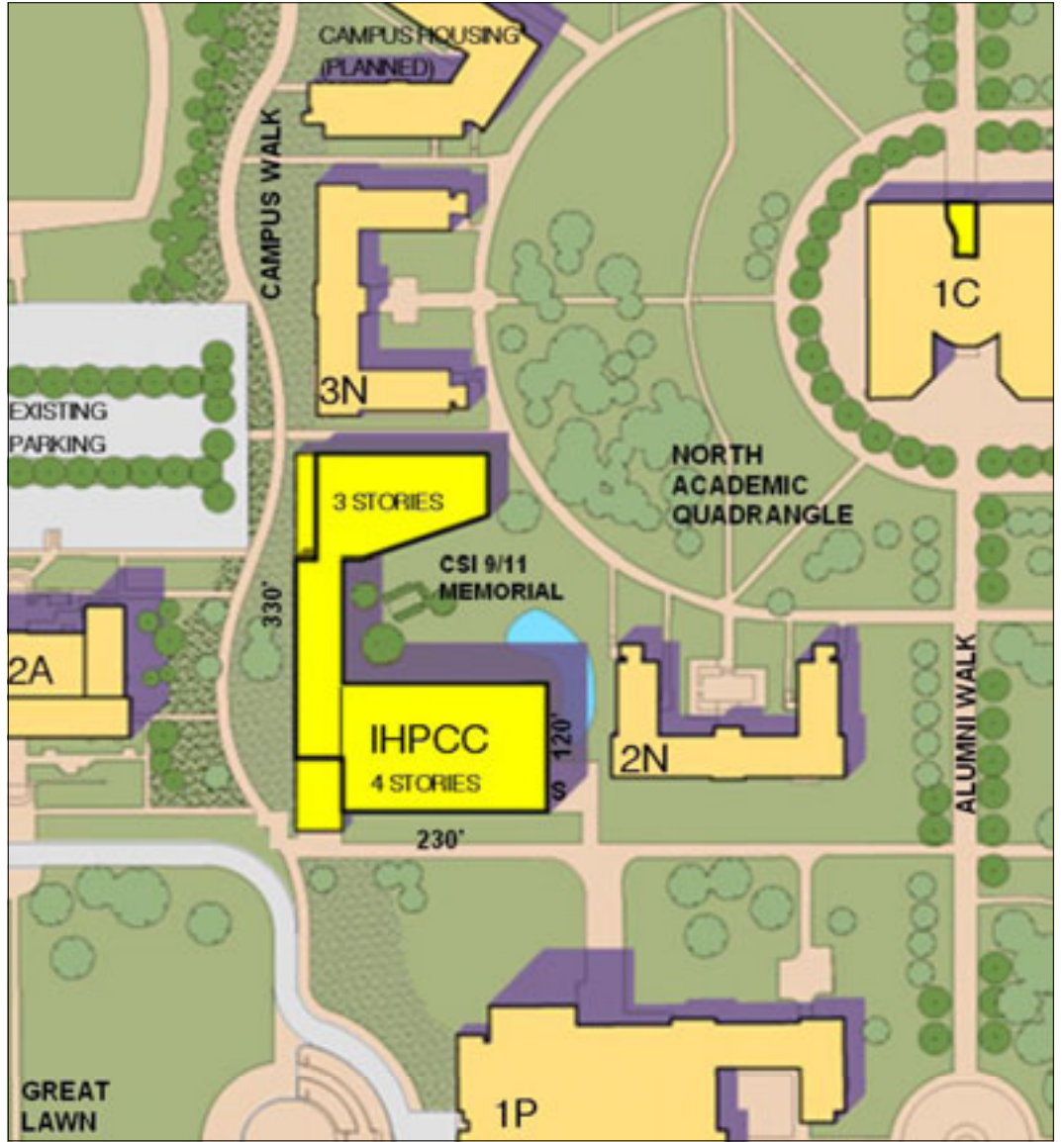


Fig. 29 IHPCC Site Plan

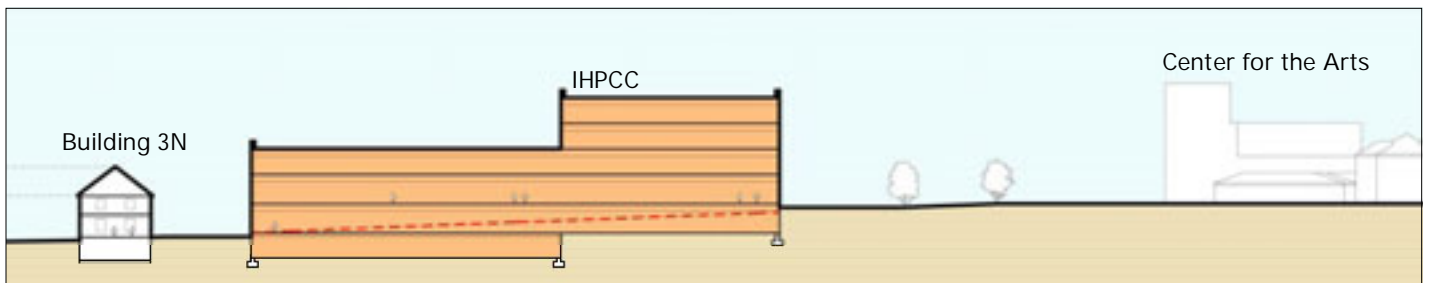


Fig. 30 IHPCC Site Section



Fig. 31 Concept Rendering of IHPCC: View from North Academic Quadrangle

The concept design shown for planning purposes reflects several strategies for the location and massing of the building to create a good fit with the campus setting. The building is divided into two major wings connected by a 40-foot wide link. While the College would like to realize the entire project, if funding did not permit, this design approach would facilitate phasing. The concept massing of the building respects to the surrounding context. IHPCC is 4 stories at the south end to respond to the larger scale of the Great Lawn and the Center for the Arts. The main entrance to the building could be at this corner, linking to Campus Walk, the Center for the Arts, and a main east-west pathway, as shown in the rendering on the next page. At the north end, the building is 3 stories to respond to the smaller scale of Building 3N.

The concept for the site and its landscape reflects several considerations. The building creates a courtyard to frame the existing CSI 9/11 Memorial, built by campus staff on this site, and create a contemplative space. To manage stormwater in a sustainable manner, the project includes a rain garden to detain and purify runoff. A variety of paths and entries would allow circulation to and through the building to connect to surrounding areas, consistent with access and security considerations. A loading area is located at the west end of the building, screened from the most visible public areas. The IHPCC building will be equipped with a dedicated emergency electrical generator. A geothermal system (ground source heat pump) should be considered for the building for energy efficiency.

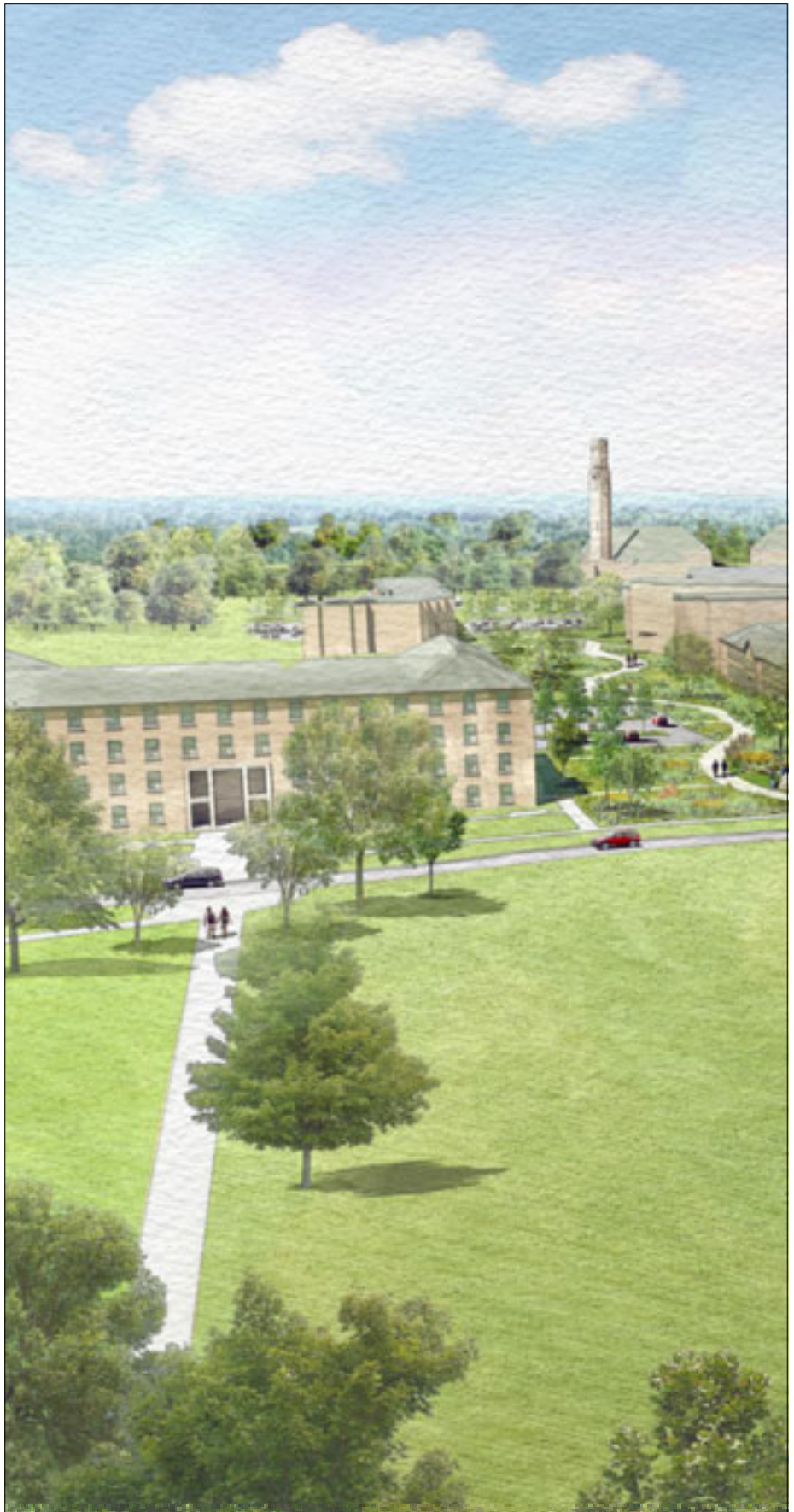


Fig. 33 IHPCC Concept Rendering: View from Great Lawn



Campus Center / Building 1C

In order to address the current deficit and future projected need for space to support and enhance student support services and campus life, the Master Plan includes a significant expansion and major renovation of the Campus Center. The project will allow for space for expanded dining facilities for the expanded population and adjacent housing, an improved bookstore, more space for student clubs, services, and study space. A portion of this space would be very useful as a Financial Aid/ one-stop hub in the Campus Center. A subsequent detailed program study is needed to identify the breakdown of these spaces, based on more specialized study of food service and retail goals.

The addition is projected at 18,000 ASF / 30,000 GSF (60% net to gross). The existing building is 40,430 ASF / 60,926 GSF (66% net to gross). The most beneficial location for the addition could be the east side, in order to relocate dining areas internally while retaining kitchen areas. Most campus stakeholders consider the current dining area which occupies most of the ground floor public areas to be unappealing and functionally problematic. A proper entrance lobby is needed to assist with wayfinding in the building and to provide a more welcoming environment. Relocation of the bookstore and radio station may be desirable to permit a spacious dining area and a more transparent, welcoming appearance to this side of the building next to the main entrance. Adding to the east side of the building will enable this without costly rebuilding of food service areas, however will require relocating the loading dock and emergency generator. A small in-fill addition could be considered to fill the constricted north entrance plaza and create a more welcoming entry on this side of the building. A rain garden is proposed for stormwater detention and natural filtration. A geothermal system is recommended to conserve energy and reduce operating costs.



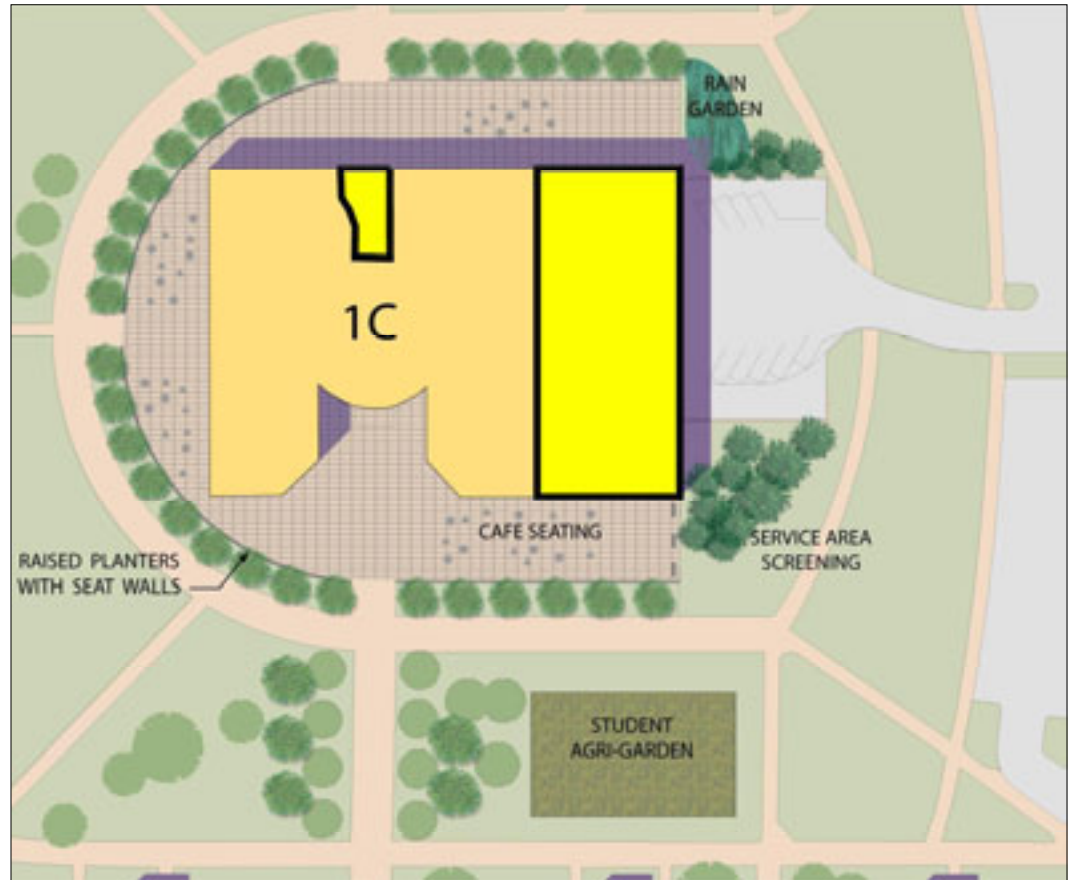


Fig. 33 Building 1C / Campus Center Site Plan

Landscape improvements associated with this project create desirable, human scale spaces on three sides of the building. A continuous plaza includes ample seating and raised planting beds with seat walls help to define the space, improve the microclimate and create a vibrant outdoor gathering space anchoring the north end of Alumni Walk. A location for a possible student agri-garden is identified nearby. Students requested such as space in the Town Hall meeting that was part of the master planning process.

Building 1N: General Classroom Facility



Building 1N, vacated by Computer Science, Engineering Science, and Physics, would be converted to serve as a general classroom building for the North Academic Quadrangle. Given that the first floor spaces are now specialized laboratories and not classrooms, some renovation appears to be required. The second floor is mostly offices which could be used for additional faculty for other north quadrangle departments, or for conversion to additional classrooms. The building currently has 659 SF of classrooms, 11,897 sf of lab and lab support and 8,507 sf of offices. Including other spaces, it totals 21,813 ASF.



Existing North Academic Quadrangle

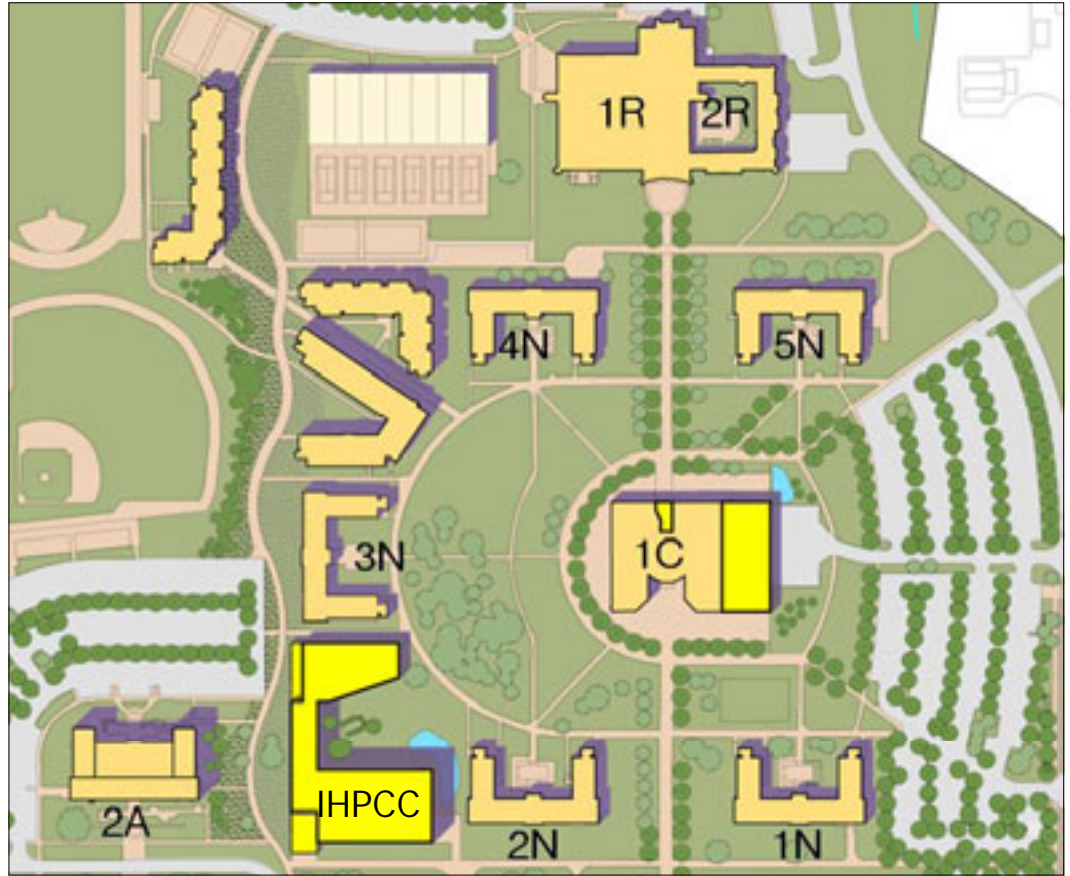


Fig. 34 Master Plan Building Projects: North Academic Quadrangle



Building 2N: Marchi Hall

History Political Science, Economics, and Philosophy will continue to occupy the building. Additional instruction space will be available nearby, in Building 1N and classrooms and lecture halls in IHPCC. Additional faculty offices could be converted from obsolete classroom space. The building currently has 10,053 SF of classrooms, 2,496 sf of lab and lab support and 8,435 sf of offices. Including other spaces, it totals 21,925 ASF.



Building 3N: Business

The School of Business will continue to occupy the building, with additional instructional space available in Building 1N and IHPCC and the option of creating additional faculty office space through conversion of existing space. The building currently has 5,600 SF of classrooms, 7,785 sf of lab and lab support and 5,350 sf of offices. Including other spaces, it totals 19,176 ASF (not including vacant, inaccessible basement spaces).



Building 4N: Engineering Technologies

While some of these areas could be consolidated into IHPCC, specialized lab spaces such as Engineering Technologies Fabrication Lab and the Geology Laboratory would likely remain given space constraints in the new building and cost factors. Any space vacated through consolidation of engineering functions to IHPCC would be available for contingency space, to be determined. The building currently has 2,240 SF of classrooms, 12,928 sf of lab and lab support and 1,986 sf of offices. Including other spaces, it totals 17,663 ASF (not including vacant, inaccessible basement spaces).



Building 5N: Physical Therapy

Physical Therapy would continue to occupy the building and have access to additional classroom space provided by Building 1N and IHPCC. Until 2008, the building was largely occupied by the International High School, and recently converted for expanded facilities for Physical Therapy.

Building 6N: Observatory

This facility, located in the athletic area, will remain. While the exterior lighting for playing fields reportedly is problematic for observatory optics, CSI does not wish to relocate the facility. The building is 476 GSF.



Campus Housing

The first phase of work for the CSI Master Plan Amendment in 2006 was working with the College and CUNY to identify a recommended location for the first on-campus housing at the College of Staten Island. The project, intended to serve both students and faculty/staff, is considered to be an important initiative. It will facilitate recruitment of national and international students by providing accommodations on campus. It will also strengthen the sense community at this commuter school by creating a full-time student presence on campus. The recommended location for the campus housing is the northwest corner of the north academic quadrangle. This location, now occupied by deteriorated basketball courts, has excellent proximity to the Campus Center, the Sports and Recreation Center, and parking, all important considerations for future residents. Locating housing in the north quadrangle can also create a gateway condition for enhancing the experience for those arriving from the main entrance at Victory Boulevard, and can help to balance activity between the north and south campus. See the Appendix: Housing Location Study for more information.

The project is a public / private partnership with CUNY and American Campus Communities. Architects retained by ACC developed designs for a three-building, 4-story development with 607 beds. A diagonal path links those arriving from the north end of campus to the interior of the north academic quadrangle. To achieve the program total, this design includes a third building on the site of a practice field. The project is currently on hold pending financial review.

North Campus: Recreation and Campus Service Area

While at the periphery of the campus, this area is important because of its proximity to the main entrance and the opportunity it represents to provide significant expansion into currently vacant space. This expansion, in Building 2M, will accommodate relocated functions that are now occupying valuable space in the campus core.



Building 1M: Campus Services and Central Plant

This building would remain and undergo plant upgrades, described below in the infrastructure section. With the completion of the IHPCC building and relocation of the High Performance Computer facility now on the second floor of 1M, this 4,725 SF of space would be available for reprogramming. The building currently has 49,093 ASF / 68,188 GSF.



Building 2M

This large building, the former kitchen and laundry facility for Willowbrook, has been largely vacant since the campus opened. Portions of the lower level totaling approximately 20,000 ASF are used for Buildings and Grounds storage and general campus storage. The balance of the building, approximately 68,718 ASF, is empty and in need of major renovation and abatement of probable lead paint and possibly remaining asbestos. CUNY commissioned a study for adaptive reuse of Building 2M in 2001. Subsequently, the roof and windows were replaced to stabilize the building envelop, along select other work.



Building 2M represents an important enabling project to re-organize many functions on campus. By moving select functions to this location, valuable space is freed for new functions or internal expansion in Buildings 1A, 2A, 3A, 1L, and 2R, as described below. New classroom and multipurpose space in Building 2M will provide expanded instructional space for degree courses, continuing education classes, and conferences for academic, research and possible community functions. The relocation of the Childcare facility from 2R to 2M will allow this program to expand to include children of faculty and staff, which CSI considers to be important for recruitment and retention of well qualified personnel.



The program for the functions to be relocated into the Building 2M is as follows, based on information provided by CSI. The lower level is largely without windows and best for continued storage use in these areas. The actual total assignable floor area in the building will depend on a final layout. The reduced area reflects deducting space for required corridors, stairs and elevators, not in the current warehouse-type facility.



Existing North Campus



Fig. 35 Master Plan Building Projects: North Campus

Fig. 36 Building 2M Program

Relocated Functions	Existing ASF	Proposed ASF
Continuing Education	3,069	3,360
Small Business Development Center	606	606
Discovery Institute	2,464	2,250
Business Operations in Building	10,077	11,838
Campus Planning	2,072	2,200
Library IT Server Room, IT Workshop, Storage	2,900	2,900
Public Safety areas in Building 2A	2,617	3,200
Childcare Center (including internal circulation)	7,000	11,000
Subtotal	30,199	37,354
Classrooms and Lecture Halls	NA	11,000
Contingency Space	NA	5,000
Storage in lower level*	20,000	25,000
Total	50,199	78,354

*Est. Buildings and Grounds, Central Storage

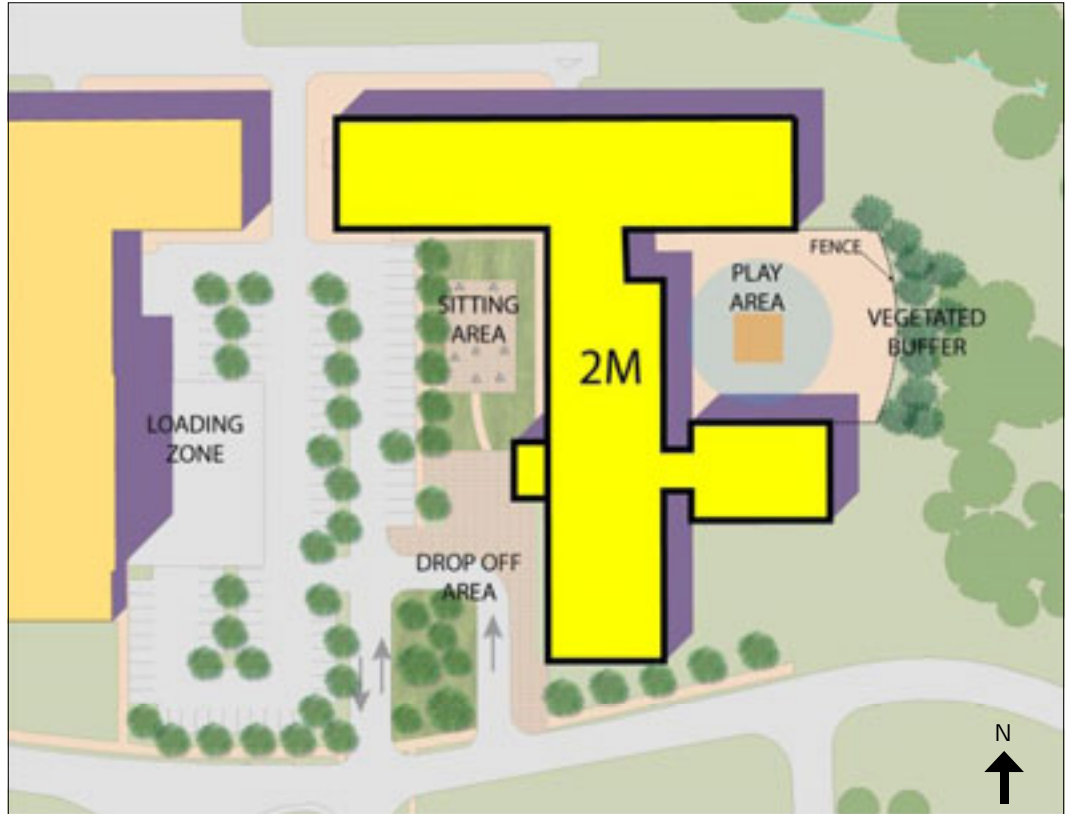


Fig. 37 Building 2M Site Plan



Fig. 38 Building 2M Exiting Elevations and Relationship to Grade

To convert a former service building into a mixed use building with more public functions, design intervention is required for both the site and building. To signify that this is a public building, a new entry addition is recommended inside the court shared with 1M, and the continuous loading dock removed. A portion of the existing parking lot is reconfigured to improve the entry sequence, provide more space for planting, and to provide a small outdoor seating area for building users. A separate entry is needed for the Childcare center, possibly to the east. By code, and adjacent playground is required for this facility as shown in the plan. The proposed location for a playground and fenced outdoor play space take advantage of the building geometry to define a safe, enclosed space.

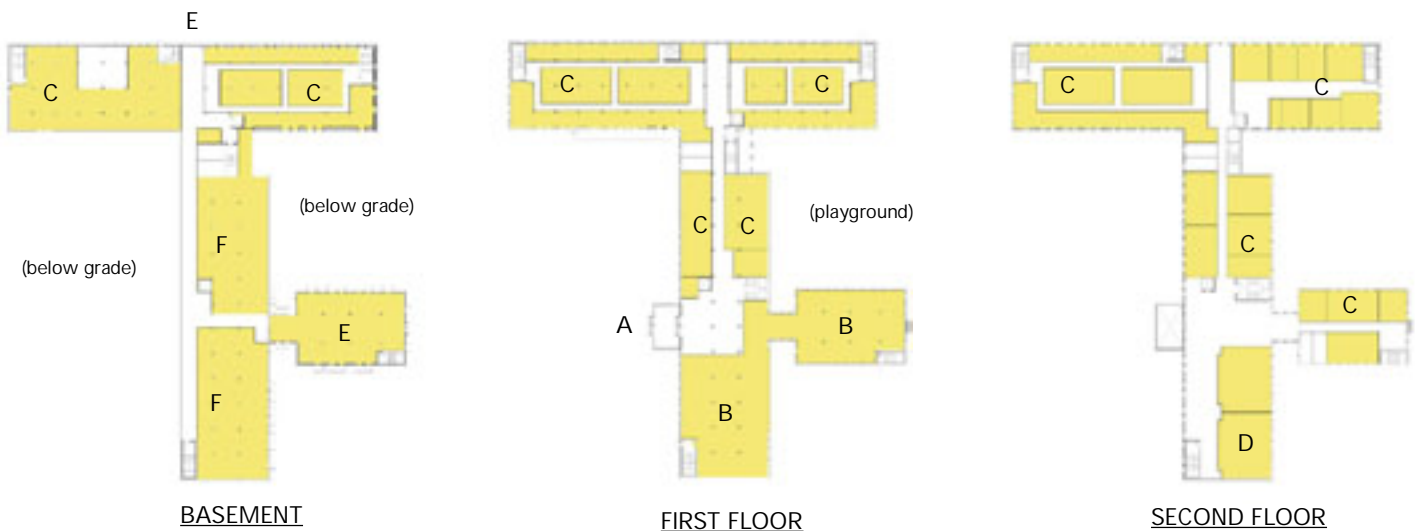


Fig. 39 Building 2M Concept Layout Studies

Key

A Main Entry	D Lecture
B Child Care Center	E Existing Loading
C Other Program TBD	F Existing Storage (B&G, Campus)



Sports and Recreation Center / Childcare Center / 1R and 2R

With the relocation of the Childcare Center to Building 2M, approximately 7,000 SF is available for internal expansion of functions in the attached Sports and Recreation Center / 1R. The north wing of Building 2R already holds athletic offices. Space vacated in 2R could be used for recreation activities such as a weight room, spinning classes, or other functions not requiring high ceilings or long-span space.

Central Campus: Arts / Administration / Student Services

Welcome Center / Building 3A

While modest in size, Building 3A occupies a prominent location as the first building approached by vehicles on the loop road. The building also anchors the foot of the Great Lawn, on axis with the Center for the Arts to the east. Formerly the administrative building for visitors to Willowbrook, Building 3A is now used for administrative support functions (Accounts Payable, Purchasing, Budget, Payroll, and the Business Manager) and has 10,077 ASF / 16,318 GSF. The Master Plan relocates these functions to Building 2M and converts Building 3A to be a Welcome Center for CSI to serve prospective students, visitors and others. The following draft program for consideration assumes a growth of 35% in space for most departments, with Financial Aid having a satellite office for prospective students, separate from the main office in Building 2A:

Fig. 40 Preliminary Program for Departments Relocating from Building 2A to Building 3A

Relocated Functions	Existing ASF	Proposed ASF
Admissions and Recruitment	3,576	4,828
Financial Aid	4,819	800
New Student Orientation / CLUE	1,832	2,473
Alumni	225	304
Subtotal	10,452	8,405
Lobby / Conf. / Multipurpose / Contingency	NA	4,370
Total	10,452	12,775

The Master Plan includes a 4,000 GSF entry addition on the west side of the building to receive visitors from a new arrival area, to provide additional space, and to transform this unremarkable side of the building to be more welcoming and engaging. The site design for the Welcome Center also encompasses a nearby new Transit Center facility, an open structure to enhance access to the campus, described in more detail below. The site design also reflects changes to the existing divided loop road to eliminate redundant lanes and create a more verdant setting. The site plan will incorporate new pathways and planting to connect this area to the campus core and screen the parking and Transit Center from the Great Lawn. Existing trees located to the north and south of 3A are preserved and additional mixed plantings are proposed for screening and to enhance the setting of the Great Lawn. New trees provide shade for the proposed parking area while the area adjacent to the roadway is planted with attractive low maintenance meadow planting to enhance the arrival sequence to the Visitor's Center.

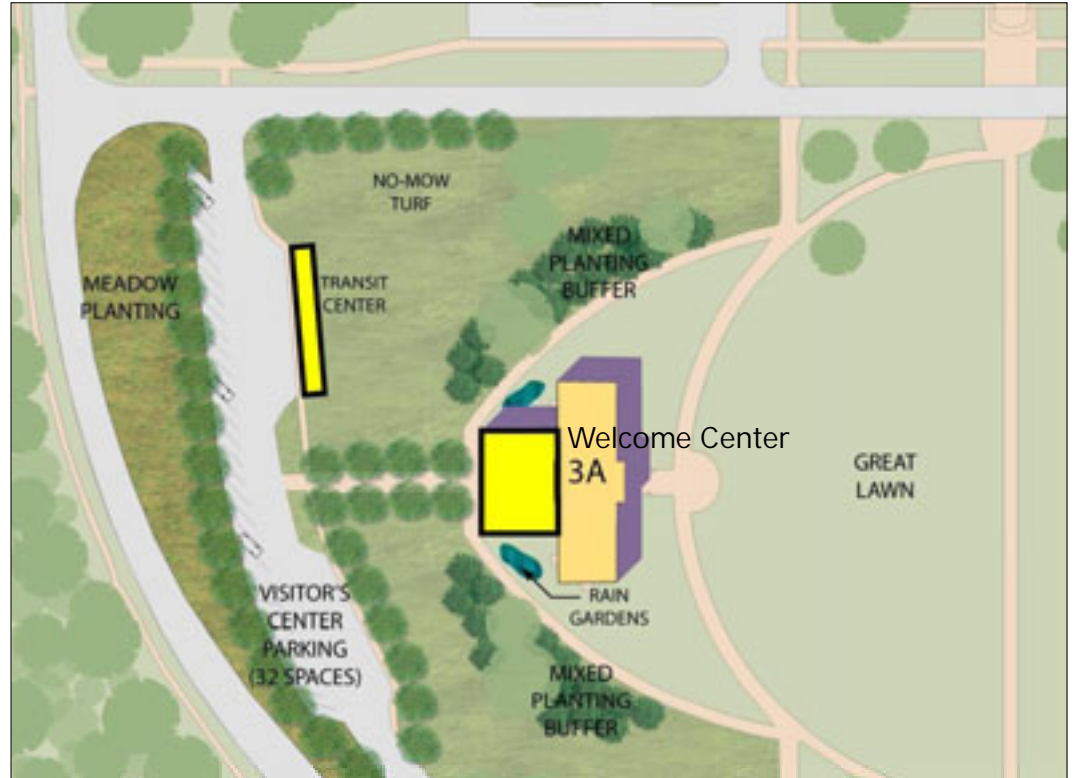


Fig. 41 Welcome Center / Building 3A Site Plan



Fig. 42 Master Plan Building Projects: Central Campus



Building 1A: South Administration

This building would continue to house the senior administration for the College as well as select student service functions. Through relocation of the Alumni office (225 ASF) to the new Welcome Center, and the Discovery Institute (2,464 ASF) to Building 2M, space is vacated to permit internal expansion for administration to support the increased enrollment and/or to expand student services. If existing testing facilities were relocated to Building 2A to permit needed expansion, this would increase available area for reprogramming. The building totals 38,009 ASF / 65,946 GSF.



Student Service Center: Building 2A

A key goal for the Plan is to create a Student Service Center. While Building 2A currently houses student service functions, substantial expansion space is needed to serve the current and projected student population. By relocating select functions to the new Welcome Center and to Building 2M,

Over 13,000 ASF of space will be available in 2A following completion of these projects. This strategy allows expanded student service areas to be located in the same building as existing ones, such as the Hub and the Student Technology Help Desk. This vacated space provides the opportunity for a properly sized Testing Center, that would be relocated from Building 1A. The current testing facilities are too constrained and inadequate. The existing building has 39,922 ASF / 69,738 GSF.

Fig. 43 Vacated Space in Building 2A available for Internet Expansion

Relocated Functions	Floor Level	Vacated ASF
Public Safety	1, B	2,617
Admissions and Recruitment	1	3,576
Continuing Education	2	3,069
New Student Orientation / CLUE	2	1,832
Campus Planning	3	2,072
Total		13,166



Center for the Arts / Building 1P

The Center for the Arts is CSI's showcase building, with attractive performance and lecture spaces that are also used assemblies, events, and some lectures. The building also includes a range of studios, academic offices and galleries. Disability Services (2,388 ASF) is currently located in the northeast wing of the building, near Alumni Walk, and requires expansion space. To provide expansion and maintain this department in a central location, the Plan proposes to relocate Disability Services into expanded space (3,000 ASF) in the new IHGCC building. This will permit some internal expansion in 1P for office or studio space. Alternatively, this area could be considered for a café facing Alumni Walk to animate the center of the campus, with renovations to the create a

more transparent frontage. The economic viability of another food service location in proximity to the Campus Center and new café in IHPCC, however, would need to be assessed.

The main entrance of the Center for the Arts fronting the Great Lawn is considered to be problematic. All traffic on the drive must pass directly in front of the entry doors, there is a surplus of hardscape and the fountain is often broken. The Master Plan recommends redesigning this space with a reconfigured drive and improved landscaping to enhance this focal point and better integrate it into the proposed Campus Walk linking the north and south ends of the campus (described more in the following section).



Fig. 44 Concept for Reconfiguring Entrance Drive, Center for the Arts

South Academic Quadrangle

The Master Plan includes several projects to expand existing functions in this precinct, including an expansion and renovation of the Library, the conversion of Building 1S to serve as a new general classroom building, a new Imaging Center addition to the Biological and Chemical Sciences Building 6S and a new greenhouse for Biology.

Library / Building 1L

To address Middle States Accreditation guidelines, CSI must expand its library collections from the current 250,000 volumes to 500,000, taking into account access to shared CUNY library resources. The College must also provide expanded study space for the projected enrollment. The goal, based on guidelines is study seating capacity for 10% of student body (FTE). After recent renovations to double study seating capacity, CSI now has study seating for only 6% of the current enrollment. These needs are reflected in the current heavy use of the Library and its cafe. Existing Library areas are summarized in the table below.

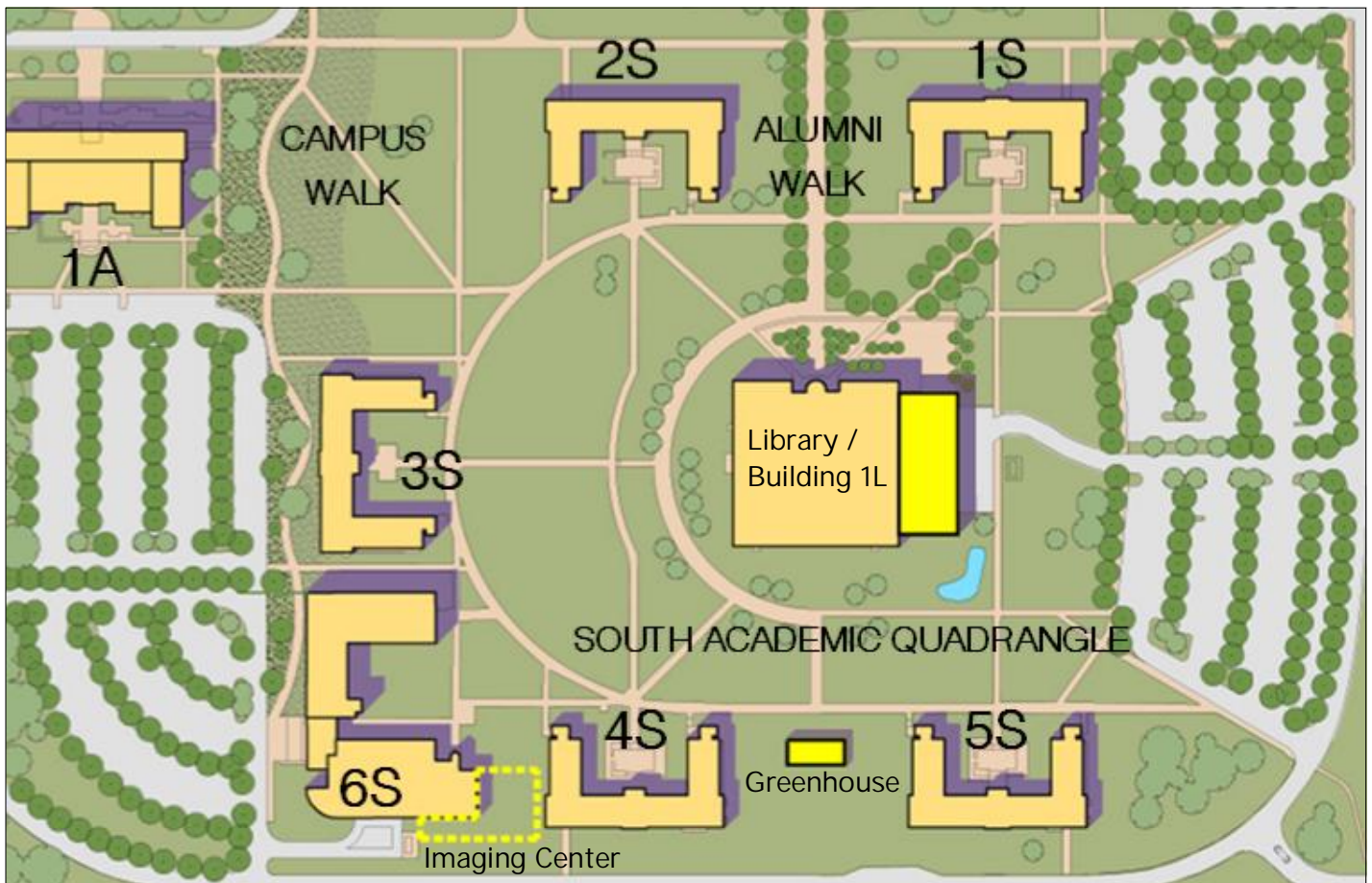
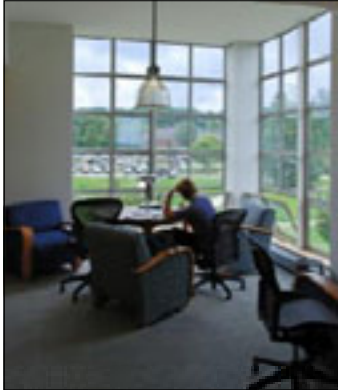


Fig. 45 Master Plan Building Projects: South Academic Quadrangle



Library / Building 1L Existing Areas

	ASF
Open Lab / Study Lab	3,784
Library Offices, Conference	13,618
IT Areas moving to 2M	2,900
Library Processing	7,591
Study Areas, Open-Stack Study	19,510
Stacks	33,722
Café and Support, Vending Area	2,467
Total	83,592

To address Library program needs, the Master Plan includes a 50,000 GSF addition to the building. Based on the current net to gross ratio for the building, this could yield about 39,500 ASF. Relocation of 2,900 ASF of IT areas to Building 2M will free additional space. The highest priorities for the library expansion are increasing collection capacity of stacks, and for expanding seating capacity for student study areas, including spaces with computer access. New stacks would be designed structurally to accommodate compact shelving to increase capacity. Other important priorities for the Library expansion are a new Faculty Professional Development Center (approximately 3,000 ASF) and an expanded café. The current café is well used by significantly undersized, suggesting that doubling its size could be indicated. The final program for the library should come from a more detailed subsequent study that can address rapidly evolving trends in library use. A student service satellite office would also be beneficial.



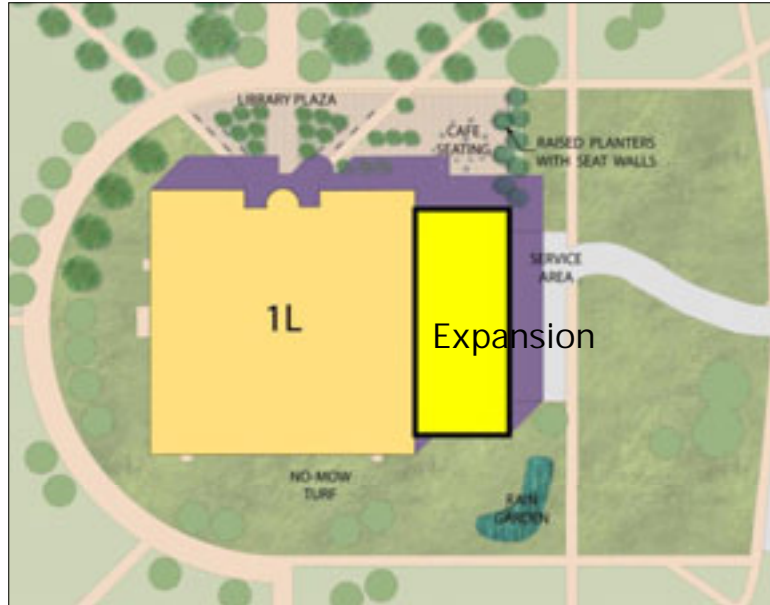


Fig. 46 Library / Building 1L Site Plan

The conceptual design approach for the Library expansion assumes a three-story addition to match the existing floor levels. To permit expansion of the café and facilitate servicing as construction, the east side of the building appears to be the best location for the addition. To create a vibrant outdoor gathering space in warmer months, the concept plan includes a terrace adjacent to the expanded café, with seating, a planted buffer and seat walls create an intimate space adjacent to the proposed café expansion. This area would activate the south end of Alumni Walk and be screened from the adjacent service area to the east with a brick wall. The current Library entry plaza, which lacks seating and landscape, could benefit greatly from new planting areas and seating as shown in the concept view.



Existing Library Plaza



Fig. 47 Concept for Enhanced Library Entrance



Building 1S: General Classroom Facility

Similar to Building 1N, Building 1S (vacated by Mathematics) would become a general classroom building serving the South Academic Quadrangle. Existing faculty offices on the second floor could be used for Nursing and other departments needing faculty space. These faculty could be moved to be with their respective departments in space converted from classroom to office over time as funding permits. Vacated faculty office space in Building 1S could then be converted to classroom space. Building 1S has approximately 21,000 ASF space total (not including inaccessible basement space). Of this, 13,612 ASF would be vacated when Mathematics moves, leaving 6,837 ASF in existing classroom space.



Building 2S: English, Speech, World Literature and Modern Languages

With additional instructional space will be available nearby, in Building 1S, these departments could add faculty offices by converting from obsolete classroom space, if desired. The building currently has 2,872 SF of classrooms, 4,574 sf of lab and lab support and 9,133 sf of offices. Including other spaces, it totals 17,400 ASF (not including vacant, inaccessible basement areas).



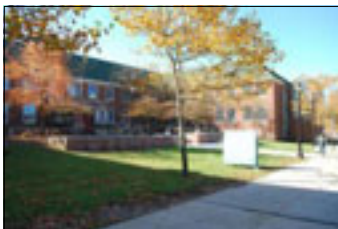
Building 3S: Education

Faculty office expansion could be achieved by converting from obsolete classroom space, if desired, since the department will have access to classrooms in Building 1S. Building 3S currently has 8,874 SF of classrooms, 4,570 sf of lab and lab support and 5,470 sf of offices. Including other spaces, it totals 19,357 ASF (not including vacant, inaccessible basement areas).



Building 4S: Psychology, Sociology, Anthropology and Social Work

With additional instructional space will be available nearby, in Building 1S, these departments could add faculty offices by converting from obsolete classroom space, if desired. The building currently has 2,251 SF of classrooms, 6,525 sf of lab and lab support and 7,103 sf of offices. Including other spaces, it totals 16,662 ASF (not including vacant, inaccessible basement areas).



Building 5S: Marcus Hall / Nursing

Nursing expects significant growth in enrollment. To provide additional faculty office space to serve this growth obsolete classrooms could be converted, if desired, since the department will have access to classrooms in Building 1S. Building 4S currently has 4,262 SF of classrooms, 7,104 sf of lab and lab support and 4,797 sf of offices. Including other spaces, it totals 21,029 ASF.

Greenhouse

The existing greenhouse in Building 6S is more an architectural feature than a functional research facility. CSI would like a new free-standing greenhouse to support teaching and research in Biological Sciences. A pre-fabricated structure, approximately 2,100 GSF is included in the Master Plan. The recommended location is between Buildings 4S and 5S to provide proper solar exposure, proximity to 6S and to visually enrich and frame the south academic quadrangle.

Building 6S: Biological Sciences, Chemical Sciences, Imaging Center

Building 6S is currently undergoing major renovations to make this building, purpose-built in 1993 for to includes science laboratories, more functional and energy efficient. As part of an initiative to establish an Imaging Center to support Biology and Chemistry, CSI is planning to convert existing lower level support areas to serve as an interim facility. The preferred solution is to provide 4,800 ASF of new space designed specifically for this function as an addition to the southeast corner. The building would be below-grade to connect to the lower level of the building and preserve campus open space, and total approximately 8,000 GSF.





E. Enhancing Access: Circulation Projects

The College of Staten Island is different from most CUNY senior colleges in that it is remote from efficient means of public transit and centrally located in a Borough that has come to rely heavily on the automobile for transportation. Capital projects undertaken inside the campus boundaries as part of this Master Plan Amendment will not be able to change this situation. At present, almost all faculty and staff request a parking decal (97%). While most students drive to and from CSI, with 57% requesting parking decals, a significant number use a bus – either the MTA or the very popular Shuttle to the Ferry operated by the College.

The topic of future access generated considerable passion and debate among students, faculty and staff, at program interviews, town hall meetings and in the Master Plan Steering Committee itself. Currently in the morning and evening there is severe traffic congestion at campus entries and on Victory Boulevard. There is also a perception that parking is inadequate at peak times, exacerbated by an imbalance of parking supply between the north and south campus. As the enrollment grows significantly over the next ten years, providing sufficient access to campus is essential. Strategies for access need to be realistic, but also sustainable and consistent with CUNY funding guidelines. The Plan aims to identify a range of strategies that are flexible enough to be used in concert to meet future needs as they evolve.



1. Campus Access Strategies – Travel Demand Management

With approximately 3,000 existing parking spaces and a projected enrollment growth of 35%, there was a consensus that the current model of seeking to provide student parking at low cost to virtually all who request it, is not considered sustainable. There was also a consensus against paving significant additional campus areas for parking - converting open space that can be used to meet academic or recreation needs to surface parking is not recommended. Rather, the planning team strongly recommends utilizing Travel Demand Management (TDM) in order to decrease the rate of growth in parking demand. The Ferry Shuttle is a successful example of how one such strategy has already been realized. As enrollment has increased significantly in the last 2 years, student parking demand has reportedly increased at a much lower rate, reportedly due to this shuttle.

A range of the possible TDM options is listed in the table on the opposite page. It is critical to note that many of these potential initiatives entail operating funding and not capital funding. A good example would be a possible additional shuttle line to the south, where a major portion of the CSI population lives, down Richmond Avenue to the Huguenot Station, as shown on the map below. With significant constraints on growth in operating funding, however, it remains to be seen how significant new initiatives can be funded.

Increasing campus utilization on Fridays is a way to decrease peak parking demand without significant operating cost implications. About 13% of classes now occur on Fridays, relatively high by CUNY standards according to the College, but suggesting more potential capacity. The College is also open to considering programs that would provide a degree using only weekend classes.

Effective implementation of TDM measures can reduce, but may not eliminate the need for more parking. As described below, the plan provides minimal additional parking. To address the College's concern in the event that TDM does not significantly reduce demand, the Plan also includes a recommended site for a new parking structure that the College could build using private funding if desired and viable.



Travel Demand Management Measures for Consideration

A. Alternative Transportation Options

- Introduce additional shuttle bus routes
- Introduce tram services between north and south quadrants
- Send transit information to students, faculty & staff
- Promote rideshares
- Provide reserved parking spaces for rideshares/carpools
- Provide rideshare bulletin boards (carpool, vanpool)
- Provide “occasional parker” options up to 5 parking permits per semester

B. Evaluate Parking Fee Structure

- Parking more expensive than transit
- Remote parking with reduced parking rates, served by campus shuttle
- Reduce parking rates for rideshares/carpools

C. Options for Transit Incentives & Amenities

- Offer Transitchek or similar program
- Offer partially- or fully-subsidized transit
- Transit subsidies funded by mandatory “Transit Fee”

D. Evaluate Class Scheduling and Location

- Balance classes between north & south quadrants
- Stagger class schedules throughout the day
- Redistribute some classes to Friday

E. Options for Cycling Facilities & Amenities

- Sheltered bicycling parking/bicycle lockers
- Shower/changing facilities in campus building
- Bicycle rental program
- Bicycle share program
- Bicycle repair service
- Bicycle maps for campus and beyond

F. Communication with the Campus Community about transportation alternatives

- Provide brochures for all TDM opportunities
- Publicize TDM measures on campus Web Site

G. Park and Ride Facility

- Study feasibility of shared, non-simultaneous use of a large nearby parking facility
- Shuttle buses between park and ride and campus

2. Entrances and Roads

Mitigating the current congestion on surrounding roads and delays entering and exiting the campus is a very high priority for CSI. These delays inconvenience CSI, its neighbors, and those passing by the campus on Victory Boulevard and Forest Hill Road. The College also believes they are losing well qualified prospective students because of the adverse impression caused by traffic delays. For these reasons, CSI considers that in order for the Plan to be a success, providing an additional campus entrance is a critical project in the next 10-year period. The Plan recommends a new 2-lane entry drive connect from Willowbrook Road at the northeast corner of the campus to the CSI Loop Road near Building 2R, as shown in the plan opposite. The Plan also includes specific projects to open bottlenecks at the 2 existing entrances. At Victory Boulevard, the existing security booth is relocated inside the gates to serve as a information kiosk and eliminate the current congestion caused by drivers who stop unnecessarily at security. Bus pull-out lanes outside the gates are widened as well so that buses no longer block traffic flow.

At the east entrance, a right turn lane is added at the intersection with Forest Hill Road to open this bottleneck and ease traffic flow. A right turn lane is also added to connect the loop road to the east entrance drive to improve flow here where drivers entering and exiting must cross when turning left or right, impeding smooth circulation.

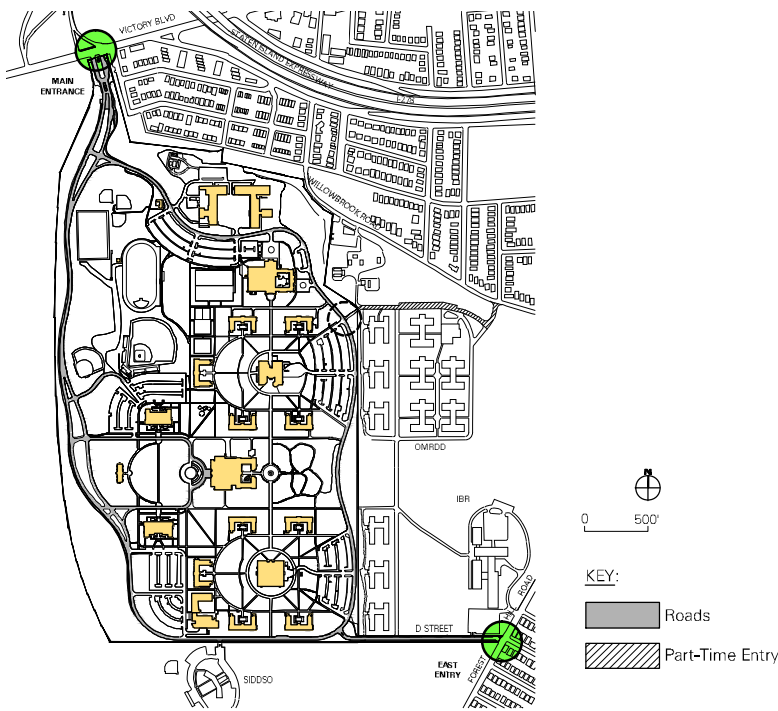


Figure 48: Existing Entrances and Roads

In addition to the new entrance, the Plan includes two other road projects to improve safety and traffic on campus. This first of these reconfigures the curved portion of the east loop road which now passes through marginal gravel parking lots to be straight, with parking inside the loop. By moving the road east of the parking, pedestrians entering the campus no longer have to cross this busy road. Currently, drivers must be vigilant for both cars existing the adjacent lots and for crossing pedestrians along the length of this road.

The loop road at the west side of the campus is currently divided with a grassy median with two lanes in each direction. This is more than is needed and gives the unintentional impression that higher speeds are possible than permitted. Converting the two west lanes to serve both ways allows converting the two east lanes to serve as a new Transit Center, as described more below. It also makes a more attractive setting for the new Welcome Center and is readily converted to provide adjacent visitor parking. Obsolete portions of the east lanes north and south of the Great Lawn are removed and converted to landscaped open space.

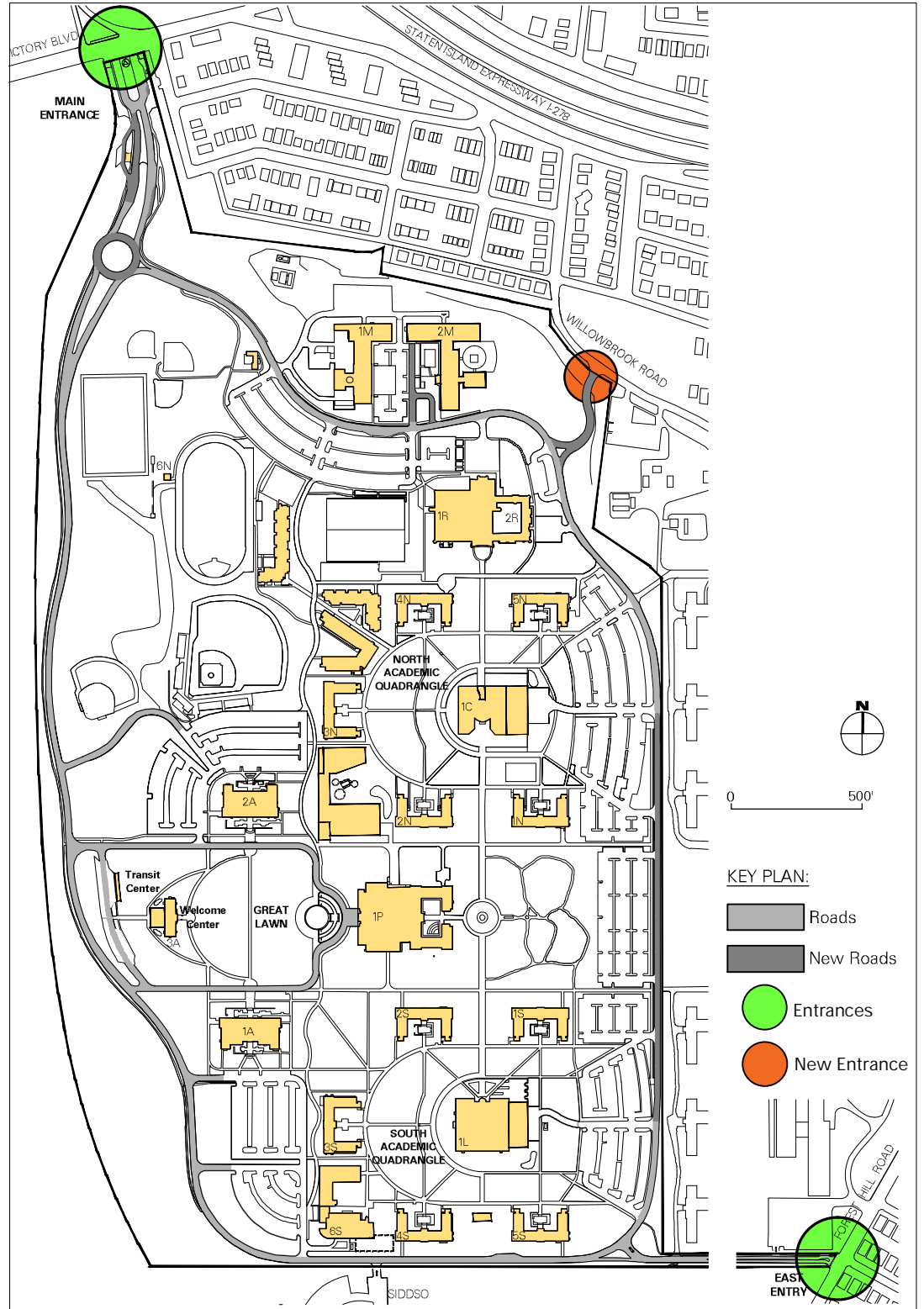


Figure 49: Master Plan Entrances and Roads



3. Signage and Wayfinding

To provide a more welcoming experience for incoming and prospective students and for visitors, the Plan includes a range of provisions to improve wayfinding. On entering the campus, rather than confronting a security booth in the stream of traffic, visitors can pull off the loop road and ask for directions at a new information kiosk. The new Welcome Center in Building 3A will provide the destination for current prospective students and visitors that the campus lacks now. The Plan includes a project for a comprehensive replacement of current signage for vehicles and for pedestrians. Currently, road signs inside the main entrance direct cars to parking lots rather than destinations. It is not until deep into the campus that signs for destinations used by visitors appear. Replacement signs should be more directed at those who need wayfinding assistance most. Likewise, the Plan includes replacement of pedestrian signs with improved directional signs and more campus map signs. A detailed study is recommended to define the specific organizational scheme, location, design and final quantity of signage.



Figure 50: Existing Transit Service

4. Transit

In order to improve MTA bus service to the campus core, the Plan includes a new transit center near the Welcome Center. A similar condition existing during the Willowbrook era when MTA service came into the site from Victory Boulevard. The proposed new transit center would include pull out space for two buses at a time and a shelter for 60 people. Consolidating a Loop Road bus stop and the CSI Ferry Shuttle stop in this location would provide improved connectivity. The adjacent Welcome Center could provide access to restrooms and a waiting area in inclement weather, perhaps in a lower level. This would provide an amenity for MTA bus drivers, which would help facilitate the Victory Boulevard entrance to the proposed Transit Center.



Figure 51: Master Plan Transit Service

5. Parking

The Plan converts existing sub-standard gravel lots on the east side of campus to permanent lots, inside the loop road with landscaped islands. This results in a modest net gain of 10-20 spaces. The Welcome Center adds 32 visitor parking spaces. The vacant lot north of Lot 4 is converted to 54 additional surface parking spaces, which is consistent with the site organization on this side of campus. Together, these projects add 96 to 106 additional spaces to the existing 3,000 spaces.

If TDM measures do not eliminate the need for significantly more parking, another option would be an arrangement for a remote park and ride facility serviced by a CSI shuttle. A user that has high parking demand on weekends and lower demand on weekdays could be a candidate.

KEY:

- Gravel Lot
- Paved Lot

PARKING SPACES

LOT 1	403
LOT 2	370
LOT 3	308
LOT 4	444
LOT 5	24
LOT 6	469
LOT 7	98
ADMIN LOOP	41
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SUBTOTAL	2,157
EAST SIDE (GRAVEL)	756
WEST SIDE (GRAVEL)	65
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TOTAL	2,978

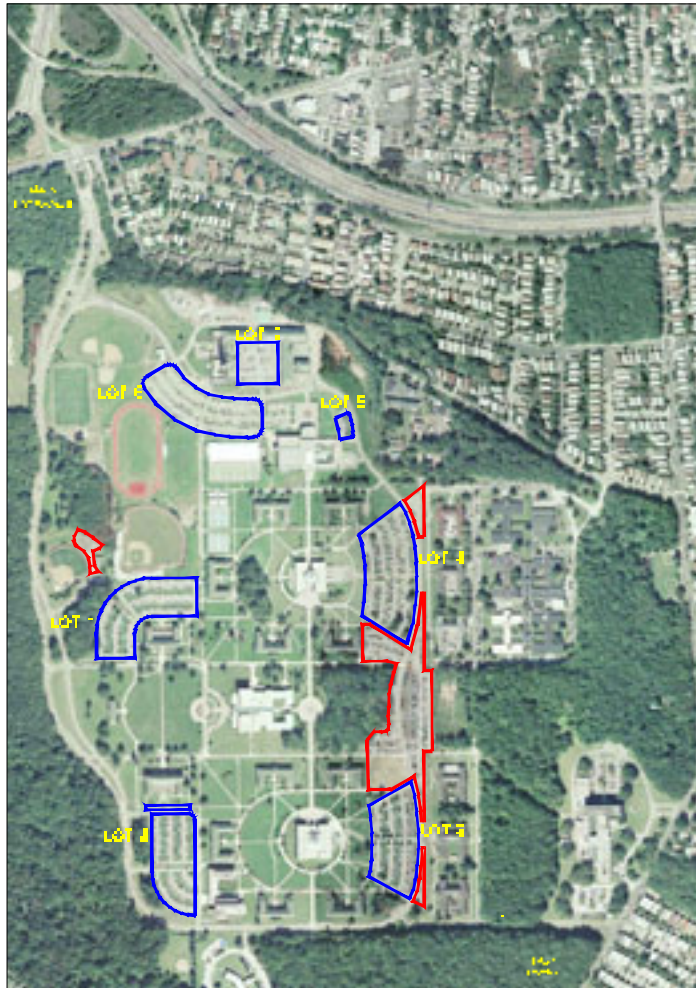


Figure 52: Existing Parking

If this approach were not feasible, and a campus parking structure were required, the Plan recommends a preferred location, east of Building 1N in a portion of Lot 4. This location has the advantage of being centrally located to serve the campus for pedestrians and near the new campus entrance and the east entrance for vehicle access. It is near the Campus Center, away from visually sensitive areas, and would not add to impervious coverage. Since State funds cannot be used for parking, any garage would have to be privately funded. This would require a re-assessment of parking operations.

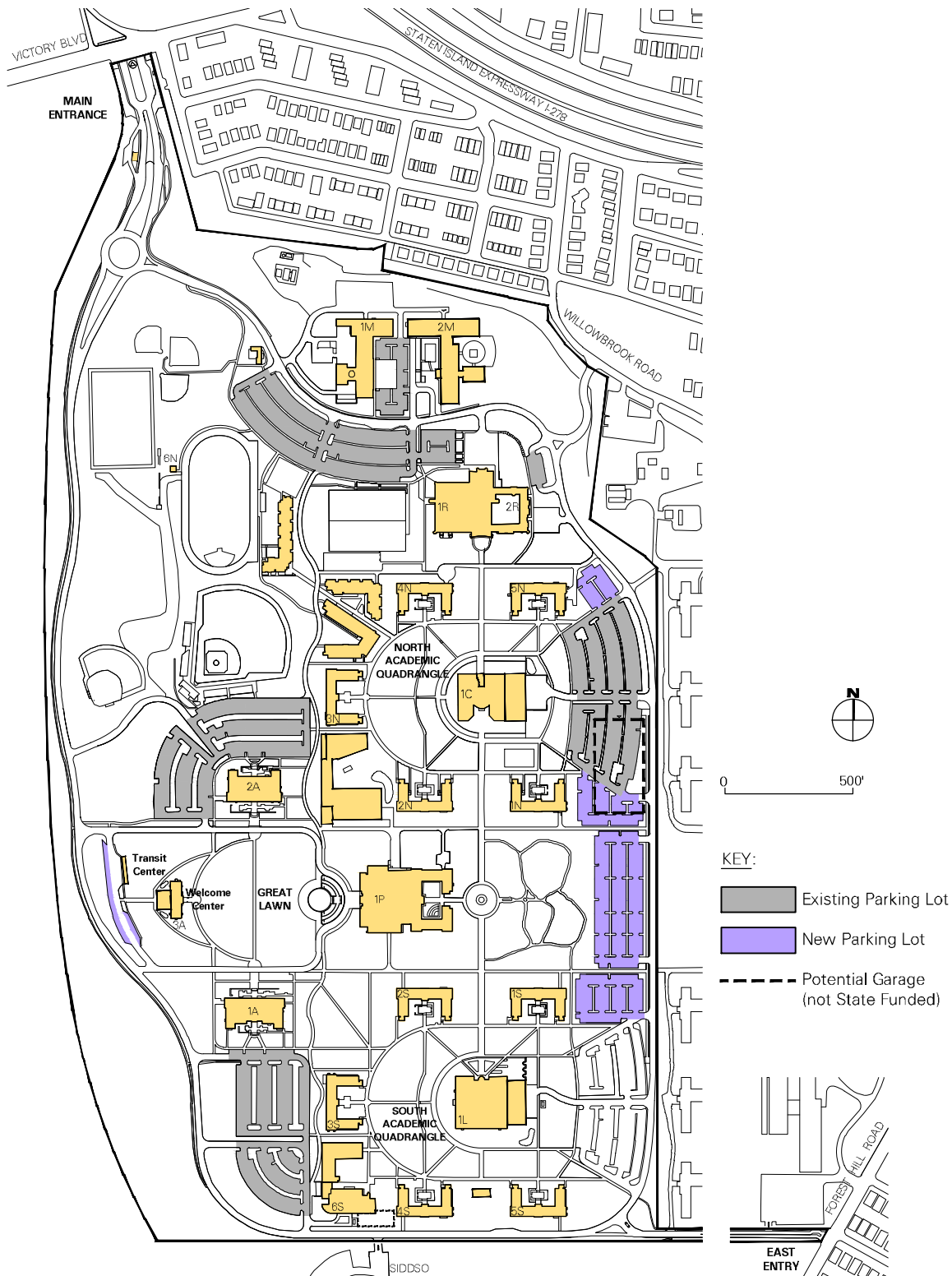


Figure 53: Master Plan Parking

6. Service

The Plan relocates trash pick-up to the periphery of the academic quadrangles in order to clarify service circulation and create a more pedestrian-centered campus core. Small-scaled electric vehicles will continue to provide mail delivery to buildings in the academic quadrangles. Access to main loading docks remains unchanged, with vehicle access either directly off the loop road (Building 6S, 1M) or from existing parking lots. As noted earlier, the loading docks for the Library and Campus Center would be replaced with new ones in each addition with direct access to adjacent drives through parking lots 3 and 4. Service yards in these areas would be screened by brick walls to block views from the adjacent academic quadrangles.

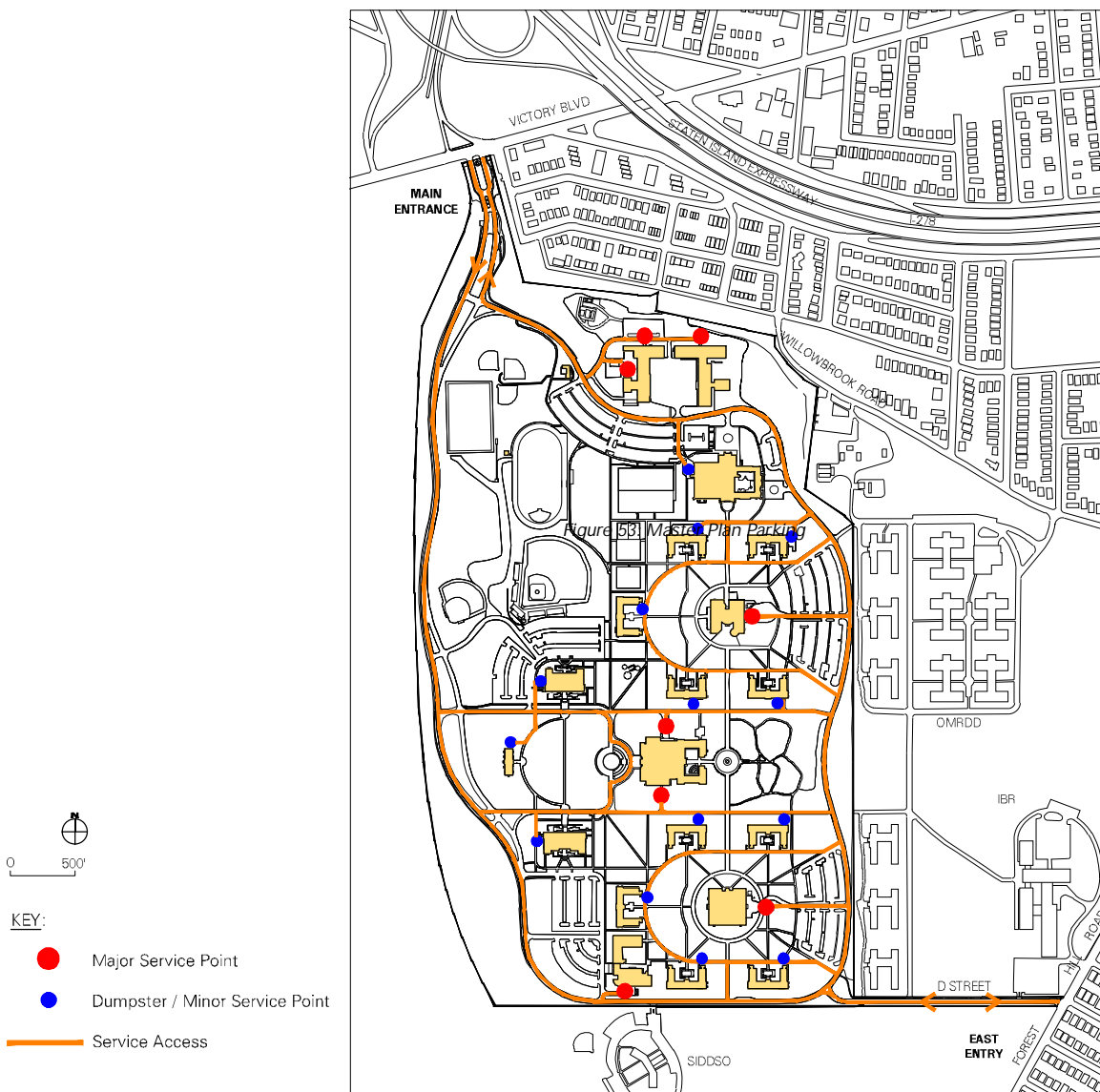


Figure 54: Existing Service

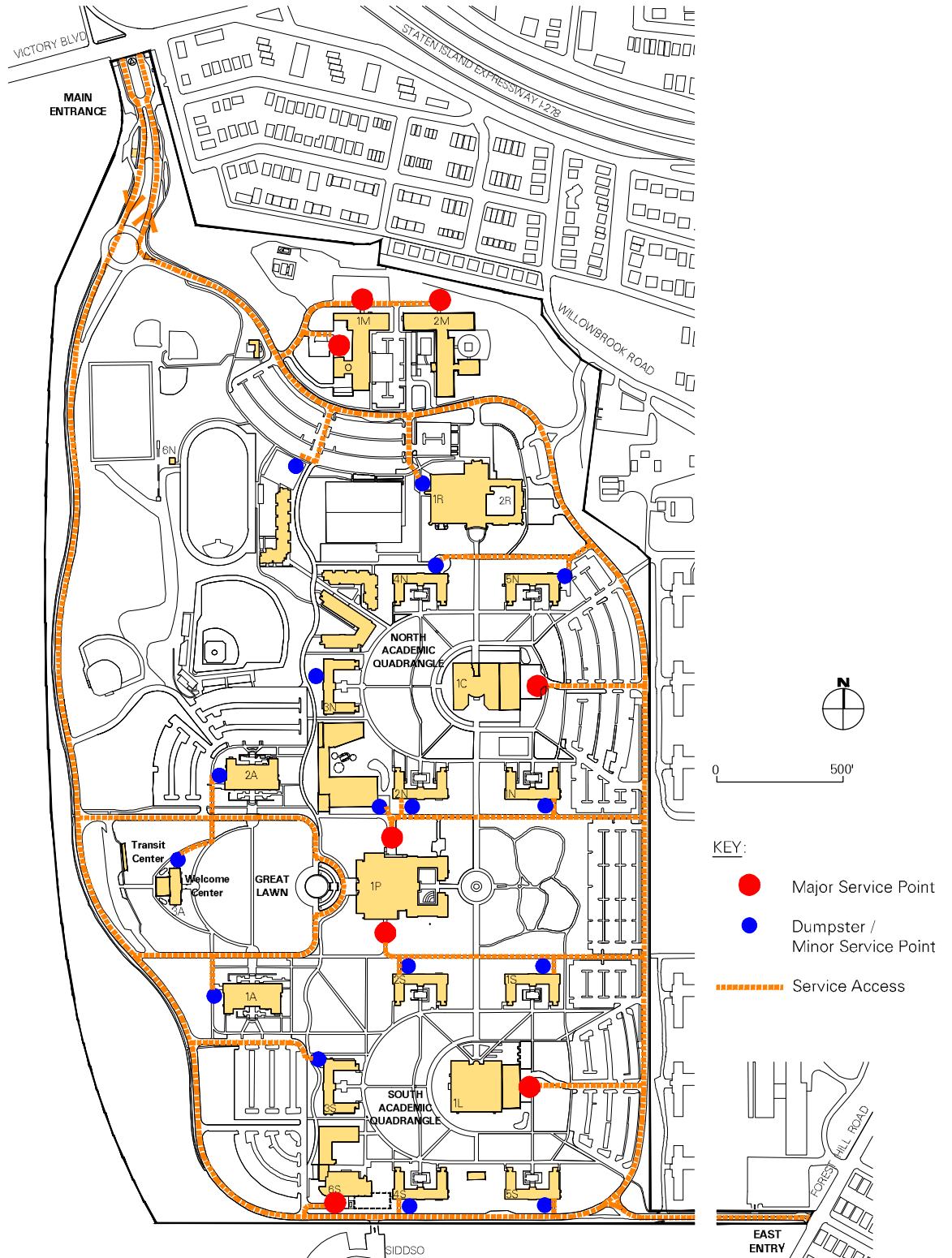


Figure 55: Master Plan Service

7. Bicycle

In order to promote a more sustainable campus, the plan includes a range of projects to encourage and support bicycle use. A new Class 1 bicycle path, separated from the reconfigured loop road, runs along the east side of campus. Through painting lane markings and signage, the balance of the existing campus loop road is subdivided to include a Class 3 bicycle lane and still maintain adequate lane width for vehicles. To provide access to destinations in the campus core, select interior paths with sufficient width are designated for shared bicycle and pedestrian use. One of these projects, Campus Walk, links the north and south ends of campus, and is described in more detail below in the Landscape section. Existing bicycle racks throughout campus can be supplemented as needed.

If feasible, the College should encourage the Department of Parks to provide a bicycle/pedestrian path through Willowbrook Park to connect the southwest corner of the campus to the adjacent residential area, which is home to many in the CSI community. This population now arrives by car, taking a circuitous route when a short bike ride or walk could be an attractive alternative. The viability of this concept will depend on the terms of the park, which is designated as a “forever wild” natural area.



Figure 56: Existing Bicycle Routes

8. Pedestrian

The most memorable and attractive campuses focus on creating a welcome and comfortable pedestrian experience. The Plan includes several projects to enhance and improve pedestrian circulation inside the campus. Walkways that have deteriorated from service vehicle use are repaired and replaced where needed. The two major north-south pathways are enhanced to make walking more appealing and to encourage people to consider a wider range of parking locations. These projects, to enhance Alumni Walk and create a new Campus Walk, are described in the following section.

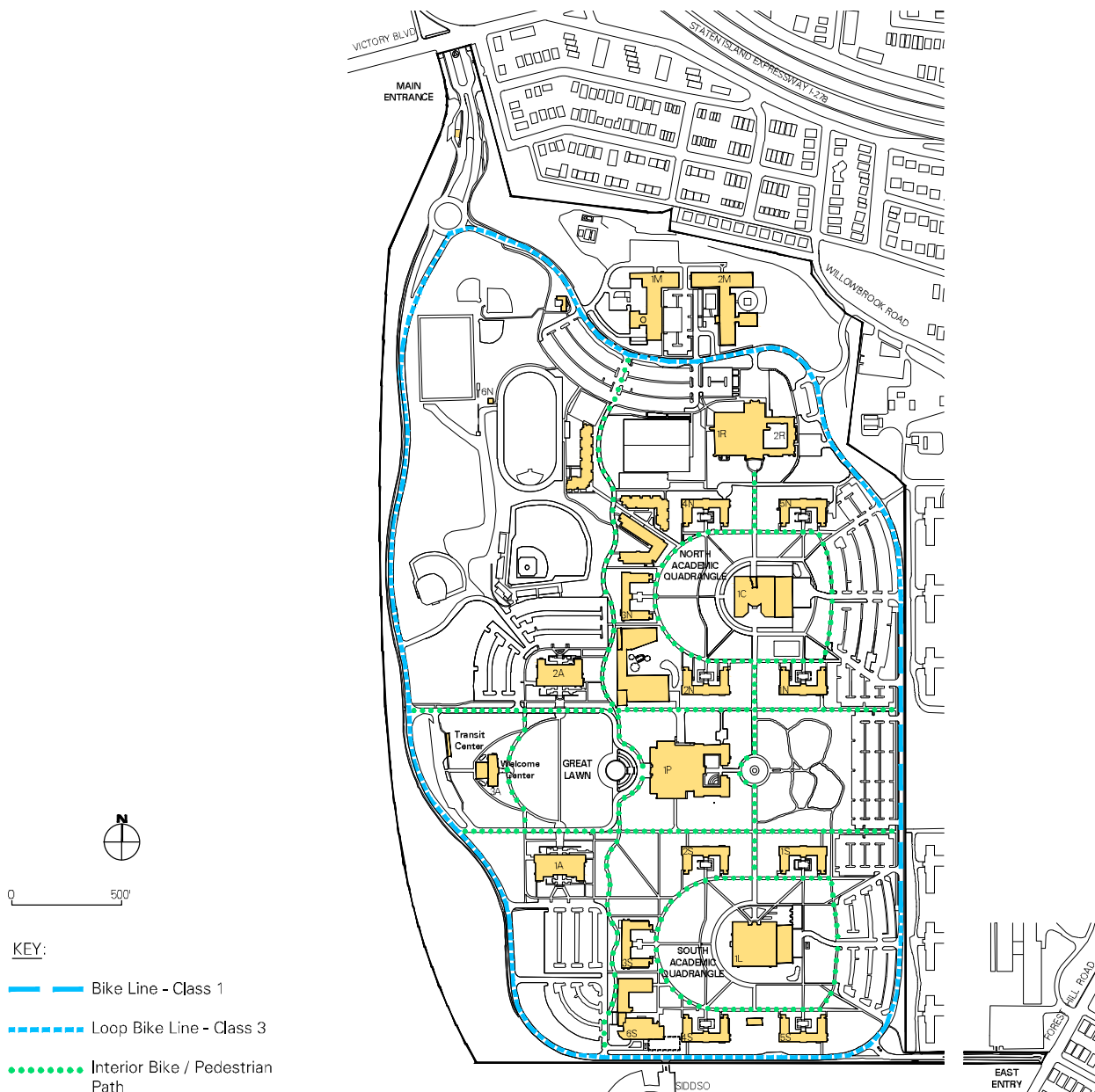


Figure 57: Master Plan Bicycle Routes



Figure 58: Site and Landscape Projects

F. Greening the Campus and Strengthening Community: Landscape Projects and Guidelines

In addition to landscape and site work associated with building projects, the Plan includes additional landscape projects to beautify the setting, preserve natural areas, enhance sustainability, and provide more welcoming and vibrant outdoor gathering spaces to strengthen the campus community. General landscape guidelines follow, to provide the campus with recommendations for measures that can be taken over time as funding permits to lead to a more cohesive, attractive and functional exterior environment.

1. Landscape Projects

Campus Walk

The Plan recommends reconfiguring an existing, unnamed straight sidewalk flanked by lawn, to create a more varied pedestrian experience and attractive link between the north and south campus, west of Alumni Walk, and past the new IHPC building. The Master Plan envisions 'Campus Walk' as an undulating pedestrian and bikeway with low maintenance native plantings, grasses, and meadow on both sides. The diversity of plant material and textures coupled with the curving pathway create dynamic views for the pedestrian. The areas to the east of the pathway are planted with understory trees, shrubs, grasses, and perennials while the area to the west of the pathway is a low maintenance seeded meadow, as shown in the section below. New groupings of deciduous and evergreen trees are planted where possible to avoid conflicts with the main campus utility tunnel below and are located where possible to provide a windbreak and improve the micro-climate for pedestrians.

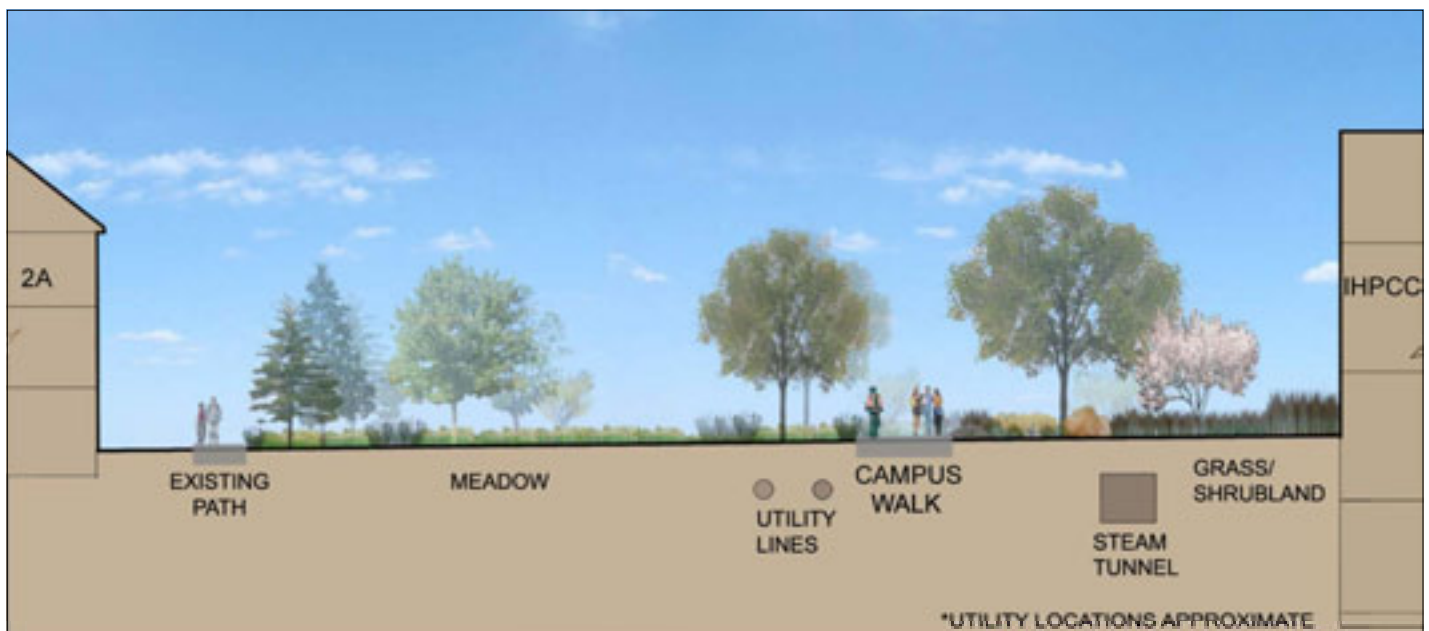


Figure 59: Section at new Campus Walk

Alumni Walk

As the prominent path that connects the north and south academic quadrangle, Alumni Walk acts as the formal spine for the campus, with a framed view of the Campus Center to the north and of the Library to the south. The trees that now line Alumni Walk are a species that is short lived and does not achieve significant size at maturity (Bradford Pear - *Pyrus calleryana*). Planting a second row of trees on each side that will achieve a larger canopy behind the existing row (as shown in the section below) would create a more sheltered, shaded and attractive experience over time. With over a quarter mile separating the Campus center from the Library, enhanced landscaping would also help to link the north and south academic quadrangles, which are now considered by some to be too separate and distant.

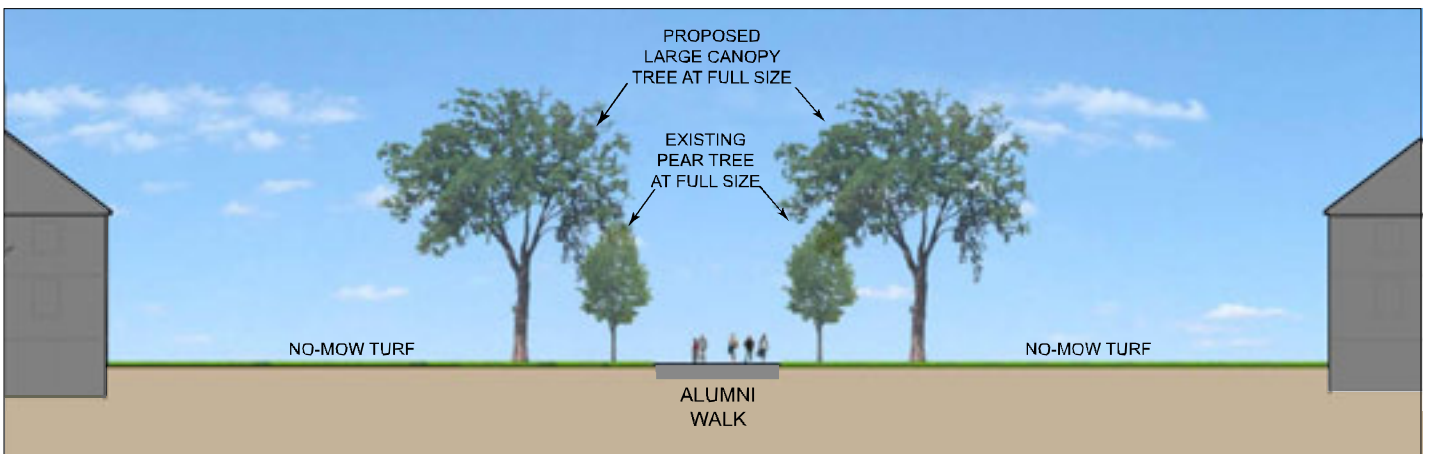
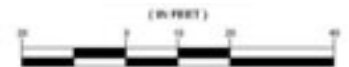


Figure 60: Section at Alumni Walk



Academic Building Courtyards

Each of the ten U-shaped academic buildings adapted from former Willowbrook dormitories frame a courtyard with the building entrance. While each court varies somewhat in design, topography, and sun exposure, they all include stairs, ramps, minimal seating areas. A detailed hardscape study completed recently by CUNY / CSI addressed these courtyards, among other areas. The study recommends hardscape repairs for these courtyards to replace failing pavement and replace handrails to meet current accessibility requirements. In addition to this scope, further landscape enhancement is recommended as funds permit to make these courtyards more successful gathering spaces for informal interaction and learning. This could be achieved by installation of unit pavers in sitting areas, additional tree planting and groundcover, replacement of existing turf with no-mow turf, and new furniture including benches and café style seating. Each courtyard enhancement project could be realized independently as funding permits.

Greening Existing Parking Lots

Since parking lots take up a significant portion of the campus, it is important to take steps to make them as sustainable as possible. Existing paved parking lots already have wide grass medians that provide ample space for tree planting. Canopy trees should be planted approximately every 25' in these areas to provide shade, absorb stormwater, and reduce temperatures. Existing medians can also be retrofitted to act as vegetated bioswales that retain stormwater. By installing curb cuts and stormwater inlets, slightly lowering the grade of the median, and installing trees, shrubs, and mixed plantings the existing medians can reduce flows into the stormwater system, filter pollutants, and improve the aesthetics of parking areas.



Figure 61: Concept View / Greening Existing Parking Lots

When constructing new parking lots, such as the proposed paved lot to replace the gravel lots, New York City Department of City Planning Parking Lot Standards should be followed. These guidelines require vegetated bioswales and one canopy tree for every eight parking spaces.

Reforestation – Stewardship of Natural Areas

The campus is bordered by woods along the west side, fronting Willowbrook Park and also includes remnant groves of trees from when the original site was mostly forest. Trees in many of these areas have died or are in poor health, largely because of site degradation. Reforestation is recommended to expand and improve existing wooded zones on an area by area basis over time as funding allows. The primary focus for reforestation should be the grove east of the Performing Arts Center. While a potential asset for passive recreation and outdoor study, this wooded area has been slowly encroached upon and suffers from poor health as a result of invasive species, compaction, road salt and tight budgets for maintenance and arborist services. In order to be a viable grove of trees for the next generation, invasive species must be removed and new understory trees planted that will replace older trees as they reach the natural end of their life span. The Master Plan recommends including reforestation of the grove as part of project to straighten the eastern portion of the Loop Road and the replacement of the gravel parking lot with paved parking. (A plan showing recommended reforestation zones is included in Appendix E.)





Figure 62: Concept View / Tree planting to enhance campus connectivity

Tree planting

In addition to tree-planting projects already noted, additional tree planting along pathways and other select areas is recommended to make the campus more green, improve the pedestrian experience and help with stormwater management. CSI recently benefited from the New York City's Million Trees Initiative and approximately 900 trees were planted on campus in 2009.



Figure 63: Concept View / Enhanced landscape near campus entrance



Figure 64: Example of Meadow
NY Hall of Science

However, given the scale of the campus, there are still opportunities for additional tree planting.
No-Mow Grasses / Meadow

A significant portion of the campus's 204 acres is turf that requires regular mowing and maintenance. As new buildings are constructed and renovated on campus and as operations budgets allow, there is an opportunity to reduce maintenance costs and improve the sustainability and aesthetics of the campus by replacing traditional turf with no-mow turf and meadow plantings. No-mow is a variety of turf that is relatively new to the market that only needs to be mowed once or twice a year. Athletic fields and the Great Lawn should be maintained as traditional turf.

Meadow plantings are another low-maintenance and attractive option for turf areas. Grass areas along the loop road and along the Campus Walk are highly visible areas where flowering meadow plants can enhance the setting and signify a more sustainable approach to the exterior environment.

2. *Landscape Guidelines*

While the scope of this Master Plan Amendment does not include detailed, comprehensive Landscape Guidelines, general guidelines are included below. These aim to identify key points that may serve as the framework for comprehensive guidelines based on further input from CUNY and CSI in order to create a more uniform, durable and attractive exterior environment.

Handrails and Guardrails

Handrails and guardrails should be brushed stainless steel and meet the current New York City Building Code and ADA regulations.

ADA Compliance

Handrails, guardrails, ramps, and drop curbs are required to comply with current accessibility standards. As the Master Plan is implemented, the college should develop a set of standards for the treatment of ADA elements in a way that ensures quality installation and a uniform appearance throughout the campus. These standards should include a standard tactile surface treatment to indicate transitions, including grade changes and signage standards for people with vision impairments.

Site Furnishings

Providing improved comfort to users and updating the look of campus can be achieved for a small investment in site furnishings. Providing a unified look and strengthening the identity of the campus can be achieved by designating a set of typical site fixtures in order to achieve a singular campus aesthetic. This set of typical fixtures should comprise a catalog including:

- Site benches
- Site café chairs and tables
- Café umbrella
- Trash / recycling receptacles
- Bicycle racks
- Traffic bollards
- Site lighting fixtures

The range of choices should be limited to a few types of site elements for select applications. For example there could be a common bench along pathways such as Alumni Walk and a special bench for use in more prominent areas such as the Library Plaza and the Student Center Plaza.

Screening for Garbage and Service

The campus has a strong vocabulary of brick masonry construction. When screening is required for garbage and service areas such as the service areas adjacent to the Library and Student Center, brick masonry walls should be used so that the screening fits in with the architecture.

Bus Shelters

Standard New York City bus shelters manufactured by Cemusa may be provided by the city at MTA stops within the campus. These shelters are available in a range of sizes.

Plant Material

Trees: Large canopy trees are recommended to line north to south pathways and parking lots while smaller ornamental trees are recommended along east to west pathways and in plazas. Existing large evergreens on the campus are an attractive feature. These types of plants in small groups should be utilized to add winter interest and help mitigate winter winds.

Shrubs: Since the campus generally lacks mid-size plants, groups of shrubs should be introduced to add texture and interest at the eye-height of the pedestrian. Native understory trees and plants such as witchhazel, sweet pepperbush, winterberry holly, and mountain laurel which grow to 6'-12' in height enhance the pedestrian experience in all seasons. Shrubs groupings should be added in locations where they are close to pedestrian pathways or plazas.

No-mow and meadow: Expanses of turf should be removed and replaced with lower maintenance no-mow turf and meadow plantings. Topsoil amendments will be required for these plants to be successful, but once they are established they are attractive and easy to maintain. .

Pathways

Deteriorated pedestrian pathways should be replaced with 4" reinforced concrete except in those areas where service vehicle access is required, in which case 7" reinforced concrete should be used. A specified concrete mix should be developed to match the existing pavement as much as possible, and should prescribe the exact material mix, source, color and additives so that incremental replacement and repairs achieve a unified look. Special pathways such as the Alumni Walk and the proposed Campus Walk should have distinctive paving that incorporates unit pavers to distinguish these areas of campus.

Plazas

Unit pavers including pre-cast concrete or granite should be used in gathering spaces and plazas to differentiate these areas from pathways. The paving treatment will vary from building to building depending on the architecture and plaza design.

Fencing

Where fencing is required in highly visible areas (e.g. around the proposed play area at 2M and the proposed student agri-garden) high quality fencing should be used such as steel picket fence. Vinyl clad chain link is appropriate for less visible areas.

Curbs and Walls

Concrete curbs should be installed only where required to prevent run-off from damaging adjacent property or where space limits prohibit bio-retention. The campus has several low retaining walls that are brick with pre-cast concrete caps. These wall materials should be used when walls are in need of repair or replacement. Low walls and planting bed retaining walls constructed with interlocking concrete wall blocks or landscape timbers should be replaced with brick walls with pre-cast concrete caps.

Speed Bumps / Traffic Calming

Traffic calming will be an important part of improvements to the Loop Road. There are several ways to slow drivers and improve pedestrian and bicycle safety through pavement surface treatments, signage, and planting design. A consistent vocabulary of traffic calming techniques should be developed on the campus to achieve safe driving speeds and safe pedestrian crossings.

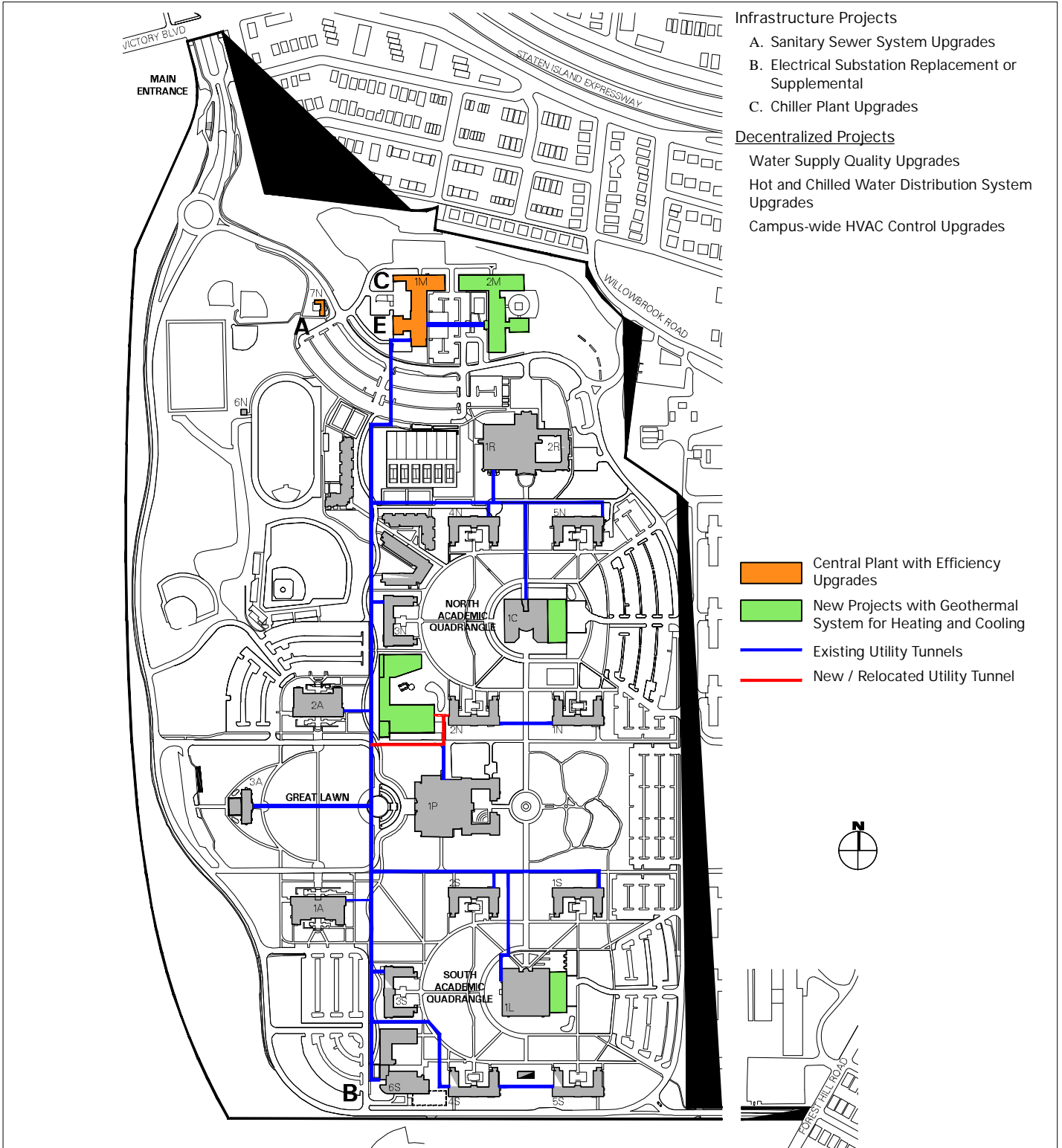


Figure 65: Master Plan Infrastructure

G. Supporting the Campus: Infrastructure Projects

Introduction

While the College of Staten Island's buildings have been built or renovated for College use within the last 20 years, much of the underlying infrastructure of the campus is nearing 70 years old. In order to replace obsolete plant and distribution systems with more energy efficient ones and to support the new development in the Master Plan Amendment, a range of infrastructure upgrades will be required. This section summarizes each overall system and recommended projects to support new construction and to address campus-wide deficiencies.

NYPA Energy Master Plan

The 2006 NYPA Energy Master Plan by DMJM Harris primarily focused on the major utility infrastructure systems (chilled water, heating hot water and electric power) in terms of their conditions, capacity vis-a-vis future campus growth, and energy use optimization. Individual buildings were reviewed in a more general nature to assess the potential for energy upgrades/ optimization. Sustainability concepts were to be considered on a global CUNY level rather than individual campus by campus basis.

Based on the load from a preliminary growth scenario developed in 2006 for development through 2020 all three major systems have capacity and/or distribution shortfalls. Since that time, the 10-Year recommended development plan has been developed which represents more load.

A major renovation to Building 6S to improve energy efficiency in this lab building is one of the recommended projects from the NYPA Energy Master Plan now being implemented.

Utility Tunnels

The campus is served by a system of utility tunnels, originally constructed to provide service to the Willowbrook State School, as shown on the plan at right. The preferred location for the IHPCC building includes a portion of a branch tunnel connecting the main spine with Building 2N. The IHPCC project scope and cost reflects relocating utilities to a new tunnel south of the building and demolition of the existing tunnel.

Sanitary Sewer System

This system dates from Willowbrook and was likely sized for this large residential population. It remains linked to the Staten Island Developmental Disability Service Office facility to the south. A wet well and ejector pump at the north end of campus (near parking lot 6) connects to the city sewer. One area of concern is the existing sewer wet-well which has no redundancy. A single point failure would affect the entire campus, as well as the SIDDSO complex. This system needs to be upgraded with a second wet-well at the lift station to provide expanded holding capacity, and a general upgrade of the pump house equipment. Sewer pipes have failed in some areas from tree root incursion. Inspecting the pipe network with a remote camera is recommended to identify and repair remaining problem areas.

Water

The campus is served by one 18-inch diameter main from Victory Boulevard to Building 1M, and by a 12-inch diameter line to the campus. Water quality has been an issue at times, especially at the south end of the campus in Building 6S, where tap water is no longer used for drinking or for lab research. Prior testing by CSI has indicated that quality levels are safe, but high levels of chlorine are reportedly interacting with copper to discolor water. Lack of adequate flow levels in the system is also suspected, resulting in the need for periodic flushing. The master plan recommends further detailed study and consideration of linking the CSI water system to an existing line in the SIDDISO property just south of Building 6S to improve flow rates. This would also give the campus a second water source, which is recommended for fire protection.

Storm Sewer

The existing system discharges into a vegetated detention basin west of Building 1M. This basin in turn discharges into a city storm sewer at Willowbrook Park. NYC DEP requires that runoff levels from the campus be maintained at current levels, with no increase in peak discharge. In order to avoid costly new storm sewers to increase capacity, the Plan recommends stormwater best management practices (BMPs) to detain and filter runoff in rain gardens provided for each new building project and for the reconfigured parking area at the east loop road. These would be sized to detain stormwater and slowly release it into the existing storm drain system. A system of bioswales linking to the existing basin was studied, but not considered viable because flow would be obstructed by shallow utility tunnels. The low percolation rate in the campus soils would likely limit the ability for runoff absorption in these detention areas. For this reason, pervious pavement is not proposed for new parking areas, but rather rain gardens.

Electrical

The campus is served by a 33kV/4160V electrical substation located near Building 1M. 4160V power is distributed to campus buildings via buried feeders. Using a preliminary development projection in 2006, the NYPA Energy Master Plan concluded that the current Con Edison transmission/distribution feeders to the campus had sufficient capacity to handle this expansion scenario; however, the campus sub-station does not meet current Con Edison specifications, and will soon be at capacity.

There is no record of actual electrical demand by building and consequently it is not possible to determine the remaining available capacity within the existing 4160V distribution network. The Plan recommends metering individual building electrical demand for this reason. DMJM had earlier reported that Con Edison would require CSI to replace or upgrade the existing substation to meet new Con Edison standards if new electrical loads were added to the existing service. Alternatively, Con Edison indicated that CSI could add a second substation to support new buildings and thereby avoid triggering the requirement to replace the existing substation. Both alternatives would require distribution upgrades in order to support new buildings. Since the IHPCC project will have significant electrical demand, the plan assumes that an additional

substation to serve the campus would be a necessary component of the IHPCC project. This alternative appears more economical than the replacement / modification of the existing substation. The actual size and cost of the new substation would need to be refined with a more detailed study. If smaller buildings were to be built before IHPCC, it remains to be determined if a new substation is required. In any event, upgrading the service (substation and distribution system) is recommended based on findings of the NYPA Energy Master Plan. The study also recommends upgrading the existing building transformers.

Emergency power is currently provided by five emergency generator plants located in buildings 1R, 1C, 1P, 1L and 6S. Budgeting exercises have deemed it more costly to create a central emergency generating plant to support new buildings than providing dedicated emergency generators as needed at new buildings and major additions. This scope is included in the Plan. The IHPCC generator will be sized to provide “a soft landing” for the supercomputer in the event of power failure, but not continued full capacity operations.

Chilled Water

The central plant in Building 1M has an operating capacity of 3,117 tons based on three of four chillers operating simultaneously; the existing cooling tower capacity and the existing chilled water pumping and main distribution piping at 1M are limiting factors preventing simultaneous utilization of all four chillers. In 2006, DMJM reported an estimated campus peak chilled water demand of 3074 tons. However, the available remaining chiller plant capacity will be substantially increased following completion of the energy-saving upgrades to Building 6S. CUNY has reported that these improvements will reduce Building 6S chilled water demand by approximately 700 tons. It is intended that this spare capacity will be utilized to service IHPCC with the exception of that building's data center. The data center will be serviced by dedicated computer room air conditioning systems with remote dry-coolers. All data center HVAC systems will be configured as N+1. The Plan includes budgets for an alternate ground source geothermal system to provide cooling for IHPCC.. Building 2M and the Imagin Center will also utilize campus chilled water. However, the remaining building projects will not be able to utilize the central plant chilled water because the existing chilled water distribution is not adequately sized to support the needs of these new buildings.

Heating Hot Water

The central plant in Building 1M has an operating capacity of 53,500 MBtuh (80,260 total) based on two of three boilers operating simultaneously. The third boiler is utilized as backup capacity in the event that any one boiler fails. In 2006, DMJM reported an estimated campus peak heating 43,347 Mbtuh. The available remaining boiler plant capacity will be substantially increased following completion of the energy-saving upgrades to Building 6S. CUNY has reported that these improvements will reduce Building 6S heating demand by approximately 6000MBtuh. It is intended that this spare capacity will be utilized to service IHPCC. The Plan includes budgets for an alternate ground source geothermal system to provide heating needs for IHPCC. Building



2M and the Imagin Center will also utilize campus hot water. However, the remaining building projects will not be able to utilize the central plant hot water because the existing hot water distribution is not adequately sized to support the needs of these new buildings.

Finally, the NYPA Energy Master Plan study also recommends upgraded automation of the central plant for improved efficiency and upgrades of campus-wide HVAC controls upgrades.



V. IMPLEMENTATION

V. Implementation

A. Introduction

The planning team organized the elements of the Master Plan so they can be assessed, prioritized, and priced individually in order to guide decision making and implementation. Related scope items for each building project for site, landscape and infrastructure are included in the project scope and cost for each building development project, as indicated below. This final chapter describes which projects the CSI Master Plan Steering Committee considers to be their highest priority, provides preliminary construction cost estimates, and concludes with a summary of phasing considerations.

B. Priorities

While CSI considers all building projects and most other projects in the Plan important for addressing the College's expanding enrollment and future needs, the Master Plan Steering Committee recognized the need to set priorities. Identifying these most important projects is especially necessary in the current and foreseeable economic climate.



1. *Interdisciplinary High Performance Computational Center*

The Master Plan Steering Committee considers the new, mixed-use IHPCC building to be its highest priority. This would be the first new building at CSI in the 20 years since the campus opened. The facility will provide a home for the high performance computer, now in the central plant building, to serve as an interdisciplinary research resource for CSI, the CUNY system as a whole and for the region. In addition to inter-disciplinary space, it will allow efficiency and synergy by consolidating related academic departments which are now dispersed in several buildings, for more efficient operations and more opportunity for collaboration across departments. The project will also provide much-needed classroom, lecture, lab, faculty office and study space – all areas where CSI now has a deficit for the current enrollment. IHPCC will also benefit all other academic departments in the north and south academic quadrangles by providing vacant space which can be re-programmed to provide internal expansion for departments not moving to IHPCC.



IHPCC Concept Rendering: View from the North Academic Quadrangle

2. *Fit-out of Building 2M*

The decision earlier not to demolish this former Willowbrook Building was far-sighted and in keeping with sustainable design principles for re-use of existing buildings. This large, mostly vacant building represents a major opportunity, long discussed, for the College to occupy new space, for less cost than comparable new construction. The project will also permit moving select functions from the campus core that do not have to be there, in order to provide expansion space for those functions that do benefit the College in a more central location – the Welcome Center, an enhanced Student Service Center, and instructional space. The project will also strengthen the campus community and potentially enhance faculty recruitment by expanding the Child Care center to accept faculty /staff children and by expanding recreation space into Building 2R. Like IHPCC, the Building 2M project is therefore also an enabling project that benefits the campus as a whole.

3. *New Campus Entrance at Willowbrook Road*

CSI considers it essential to address the severe traffic congestion at peak CSI hours on Victory Boulevard. This now causes significant negative impacts on the college population and reportedly may be discouraging prospective students from considering CSI given the poor first impression conveyed. Traffic congestion also impacts the surrounding neighborhoods and those travelling on Victory Boulevard. A new campus vehicle entrance to Willowbrook Road will provide an alternative access point to relieve congestion. While the College will still maintain Travel Demand Management efforts as operating funding permits to reduce car access demand (the CSI Shuttle to the ferry is a successful example), addressing vehicle congestion will still be essential.

4. *Library Expansion and Renovation*

Increasing library collections and providing additional student study area were two requirements noted during a recent Middle States accreditation review of CSI. For this reason, expanding the Library is also considered a high priority. Currently, library study and gathering spaces are filled with students at or beyond capacity at many times. The library expansion would address this need and accreditation requirements.



Building 2M



Library Reading Room

C. Construction Cost Estimate

The consultant team developed a construction cost estimate for each project. Projects were formatted as three types. First were building development projects with their associated site, infrastructure and landscape scopes. The building costs are based on unit costs for new construction or renovation, based on program area for comparable building types and similar anticipated levels of renovation, as is typical for master planning. The second cost estimate category is for site, roadway and landscape projects independent from building projects. These projects (as well as those associated with building projects) were based on typical units costs and preliminary quantity assumptions provided by the consultant team to the estimator. The third cost estimate category is for campus utility infrastructure projects. Estimates for these are provided in two formats. Those overall campus infrastructure projects already identified and estimated as part of the NYPA Energy Master Plan are included (per the terms of the Master Plan Amendment contract). These costs have also been included in recent CUNY 5-Year Capital Requests. It is important to note that these are expressed as total project costs (versus construction cost for the balance of the estimate). The balance of the infrastructure projects were estimated by the consultant team using preliminary quantities and assumptions (see Master Plan Infrastructure section for areas where additional metering and testing is recommended to confirm scope).

The construction cost estimate includes the following assumptions:

- LEED Silver rating for new buildings and major additions.
- Contractor general conditions, overhead and profit at 21%
- Design contingency at 15%
- Construction contingency at 5%

The construction cost estimate does not include the following:

- Architectural / Engineering Fees; permits; moving and other “soft costs”
- Premium for phasing (if required)
- Rock removal and / or dewatering
- Hazardous material testing, abatement and/or disposal
- Overtime labor
- Site Security
- Escalation (\$2010)
- Furniture, fixtures and equipment

In some cases, potential additional project scope has been identified and estimated as an add alternative. The premium to use a geothermal system for heating in cooling instead of a conventional system is one example. The range of potential building, site and infrastructure projects and their associated add alternates are summarized below, followed by an expanded format version to document the elements included in each project.

CONSTRUCTION COST ESTIMATE SUMMARY**A. BUILDING PROJECTS AND RELATED SITE, LANDSCAPE, INFRASTRUCTURE**

Project	Construction Cost (Base)	Cost: Add Alternates
1 IHPCC / Mixed Use Building / Electrical Substation	\$104,003,222	\$3,656,154
2 Building 2M Fit-Out	\$40,761,943	\$1,763,688
3 Campus Center Expansion	\$39,070,553	\$2,103,775
4 Welcome Center / Transit Center	\$10,455,151	\$0
5 Library Expansion	\$37,036,888	\$1,058,591
6 Imaging Center Addition	\$6,861,027	\$0
7 Greenhouse	\$847,076	\$0
Total:	\$239,035,860	\$8,582,208

B. SITE / ROADS / LANDSCAPE PROJECTS

Project	Construction Cost (Base)	Cost: Add Alternates
8 Victory Boulevard Entrance / Information Booth	\$1,962,882	\$0
9 Loop Road Roundabout	\$524,288	\$14,804
10 Forest Hill Road Entrance Enhancements	\$403,219	\$0
11 New Campus Entrance from Willowbrook Road	\$885,571	\$0
12 East Loop Road / Parking / Class 1 Bike Lane	\$4,078,940	\$1,547,161
13 Class 3 Bicycle Lane at Existing Loop Road	\$183,522	\$0
14 Vehicle and Pedestrian Signage	\$349,670	\$0
15 Hardscape Restoration	\$5,500,713	\$0
16 Courtyard repairs, landscape enhancement (10 Total)	\$956,073	\$0
17 Greening Parking Lots 1, 2, 6	\$488,808	\$0
18 Alumni Walk Enhancements	\$850,000	\$2,048,480
Subtotal: Site / Roads / Landscape	\$16,183,686	\$3,610,445

C. INFRASTRUCTURE PROJECTS

Project	Construction Cost (Base)	Cost: Add Alternates
20 Sanitary Sewer System Upgrades	\$905,995	\$0
21 Water Quality Upgrades	\$335,800	\$0
22 Campus fire service upgrades	\$909,310	\$0
Subtotal: Infrastructure 1	\$2,151,105	\$0

D. Projects from NYPA Energy Master Plan / CUNY 5-Year Capital Request

Project	Project Cost	
23 Substation Alternative: Replace / expand existing substation*		\$24,925,000
24 Electrical Distribution Upgrades Campus-Wide	\$29,373,000	
25 Campus-wide HVAC Controls Upgrades	\$21,105,000	
26 Additional campus fire service upgrades	\$32,652,000	
Subtotal: Infrastructure 2 (project cost)	\$83,130,000	\$24,925,000

* Instead of \$7,957,000 cost in IHPCC project for supplemental electrical substation in south campus

A. BUILDING PROJECTS WITH ASSOCIATED SITEWORK / LANDSCAPE/ MEP INFRASTRUCTURE

	<i>partial cost</i>	<i>cost</i>	<i>\$/sf</i>
1 Interdisciplinary High Performance Computational Center (IHGCC)			
Building (175,000 GSF, LEED Silver)	\$90,125,000		\$515
Additional Electrical Substation, south campus (allowance)	\$7,957,000		
Emergency Generator	\$1,146,100		
Adjacent sitework, utilities, hardscape and landscape	\$3,181,386		
Demolition, reroute utility tunnel related to building construction	\$1,593,736		
Subtotal		\$104,003,222	
<i>Add Alternates</i>			
Geothermal system (incremental cost to base building)	\$2,740,351		
West Walk A from 3N to tennis courts	\$490,850		
West Walk C from 1P to 6S	\$424,953		
Subtotal		\$3,656,154	
Total (with Add Alternates)		\$107,659,376	
2 Building 2M Fit-Out			
Building (Fit-out 122,000 GSF vacant, 700 gsf entry, LEED Silver)	\$38,037,000		\$309
Reconfigured parking and entry area, replacement parking	\$2,031,605		
Playground for Childcare Center	\$693,338		
Subtotal		\$40,761,943	
<i>Add Alternate</i>			
Geothermal system (incremental cost to base building)	\$1,763,688		
Total (with Add Alternate)		\$42,525,631	
3 Campus Center Expansion			
Addition to East Side of 1C (30,000 gsf, LEED Silver)	\$18,001,800		\$600
Full renovation, including select demolition (68,000 GSF)	\$16,976,880		\$250
Adjacent sitework, utilities, landscape, walls, relocated EG	\$4,091,873		
Subtotal		\$39,070,553	
<i>Add Alternates</i>			
Geothermal system (incremental cost to base building)	\$1,438,136		
Infill addition for new north entry (1,000 sf)	\$258,712		
Greening Parking Lot 4 (tree planting at existing islands)	\$159,870		
Student Agri-Garden	\$247,058		
Subtotal		\$2,103,775	
Total (with Add Alternates)		\$41,174,329	
4 Welcome Center / Transit Center			
Addition to West Side of 3A (4,000 gsf, LEED Silver)	\$3,358,000		\$840
Full renovation, including select demolition (19,000 GSF)	\$4,743,540		\$250
Transit Center Shelter (pre-fabricated units, for 60 people)	\$187,002		
Adjacent sitework, utilities, parking, hardscape and landscape	\$1,979,608		
West Loop Road reconfiguration	\$187,002		
Total		\$10,455,151	
5 Library Expansion			
Addition to East Side of 1L (50,000 gsf, LEED Silver)	\$30,003,000		\$600
Partial renovation, select demolition (10,000 GSF allowance)	\$3,007,600		\$301
Adjacent sitework, utilities, landscape, service yd. walls	\$4,026,288		
Subtotal		\$37,036,888	
<i>Add Alternates</i>			
Geothermal system (incremental cost in to base building)	\$930,549		
Greening Parking Lot 3 (tree planting at existing islands)	\$128,042		
Subtotal		\$1,058,591	
Total (with Add Alternates)		\$38,095,479	
6 Imaging Center Addition			
8,000 GSF below-grade addition to 6S, with green roof	\$4,964,000		\$621
3,000 SF renovation allowance to 6S lower level	\$748,980		\$250
Adjacent sitework, utilities, hardscape, landscape	\$1,148,047		
Total		\$6,861,027	
7 Greenhouse			
2,100 SF pre-fabricated structure	\$306,600		\$146
Associated sitework, utilities	\$540,476		
Total		\$847,076	
A. TOTAL: BUILDING PROJECTS (W/O ADD ALTERNATES)		\$239,035,860	
A1. TOTAL: BUILDING PROJECTS WITH ADD ALTERNATES		\$247,618,068	

B. SITE / ROADWAY / LANDSCAPE PROJECTS

	<i>partial cost</i>	<i>cost</i>
8 Victory Boulevard Entrance / Information Booth		
Roadway reconfiguration outside existing gate	\$733,169	
Relocate security booth to be new information booth, utilities	\$264,090	
Pull-off road, information parking area, green existing road median	\$965,624	
Total		\$1,962,882
9 Loop Road Roundabout		
Roadway reconfiguration outside existing gate	\$464,986	
Landscape plantings	\$59,302	
Total		\$524,288
<i>Add Alternate</i>		
Additional landscape work	\$14,804	
Total (with Add Alternate)		\$539,092
10 Forest Hill Road Entrance Enhancements		
Added right turn lane at intersection of CSI Avenue D and FH Rd.	\$162,473	
Right turn land at intersection of CSI east entry gate	\$240,746	
Total		\$403,219
11 New Campus Entrance from Willowbrook Road		
Road, culvert, modular retaining wall, landscaping, gate	\$885,571	
Total		\$885,571
12 East Loop Road / Parking / Class 1 Bike Lane / Landscape Restoration		
Reconfigure East Loop Road, Class 1 Bike Lane	\$1,693,256	
New Parking Lots	\$2,285,026	
Landscape along road (east and west)	\$100,659	
Subtotal		\$4,078,940
<i>Add Alternate</i>		
Landscape Restoration of grove of trees west of new parking lots	\$556,260	
Parking Lot 4 expansion	\$990,901	
Subtotal	\$1,547,161	
Total (with Add Alternate)		\$5,626,101
13 Class 3 Bicycle Lane at Existing Loop Road (N, W, S)		
Painted bike lane markings at existing road		\$183,522
14 Vehicle and Pedestrian Signage		
Allowance for replacement/enhancement of vehicle signage	\$126,290	
Allowance for replacement/enhancement of pedestrian signage	\$97,820	
Campus maps	\$125,560	
Total		\$349,670
15 Hardscape Restoration: (scope not covered in other projects)		
Zone 1	\$810,236	
Zone 2	\$2,395,543	
Zone 3	\$1,236,300	
Zone 4 (included in Building Projects Summary A3 and A5)	N/A	
Zone 5	\$1,058,634	
Zone 6 (included in Building Projects Summary A3 and A5)	N/A	
Total		\$5,500,713
16 Courtyard hardscape / landscape repairs / enhancements		
Cost for 10 existing academic building courtyards		\$956,073
17 Greening Parking Lots 1, 2, 6		
Lot 1	\$105,120	
Lot 2	\$172,280	
Lot 6	\$211,408	
Total		\$488,808
18 Select Tree Planting (improvements in additional to those included for courtyards in B15)		
Option 1 Alumni Walk-grading, pavement, plantings, furnishings		\$850,000
Option 2 Alumni Walk-grading, pavement, plants, irrigation, furnishings	\$1,920,000	
Option 3 Alumni Walk - large scale trees to supplement existing	\$128,480	
B. TOTAL: SITE / ROADS / LANDSCAPE (W/O ADD ALTS., #18)		\$15,694,878
B1. TOTAL: SITE / ROADS / LANDSCAPE (WITH ADD ALTERNATES)		\$16,895,651

C. INFRASTRUCTURE PROJECTS

	<i>partial cost</i>	<i>cost</i>
20 Sanitary Sewer System Upgrades		
Tank bypass, replacement with new tank	\$767,295	
Video inspection of existing Campus system	\$51,100	
System flow monitoring	\$87,600	
Total		\$905,995
(full scope to be confirmed using CSI/CUNY information)		
21 Water Quality Upgrades		
<i>Interconnect with SIDDSO system</i>	\$109,500	
<i>Hydrant flushing at the "S" cluster</i>	\$73,000	
<i>Water sampling at the "S" cluster</i>	\$65,700	
<i>Pressure testing at the "S" cluster & main Campus entrance</i>	\$87,600	
Total		\$335,800
22 Campus fire service upgrades		
1250 gpm fire pump in Bldg 1M, connect to existing mains.	\$683,280	
New 250 kW emergency generator for fire pump	\$226,030	
Total		\$909,310

TOTAL C: INFRASTRUCTURE PROJECTS **\$2,151,105**

D. PROJECTS FROM NYPA ENERGY MASTER PLAN / CUNY 5-YEAR CAPITAL REQUEST

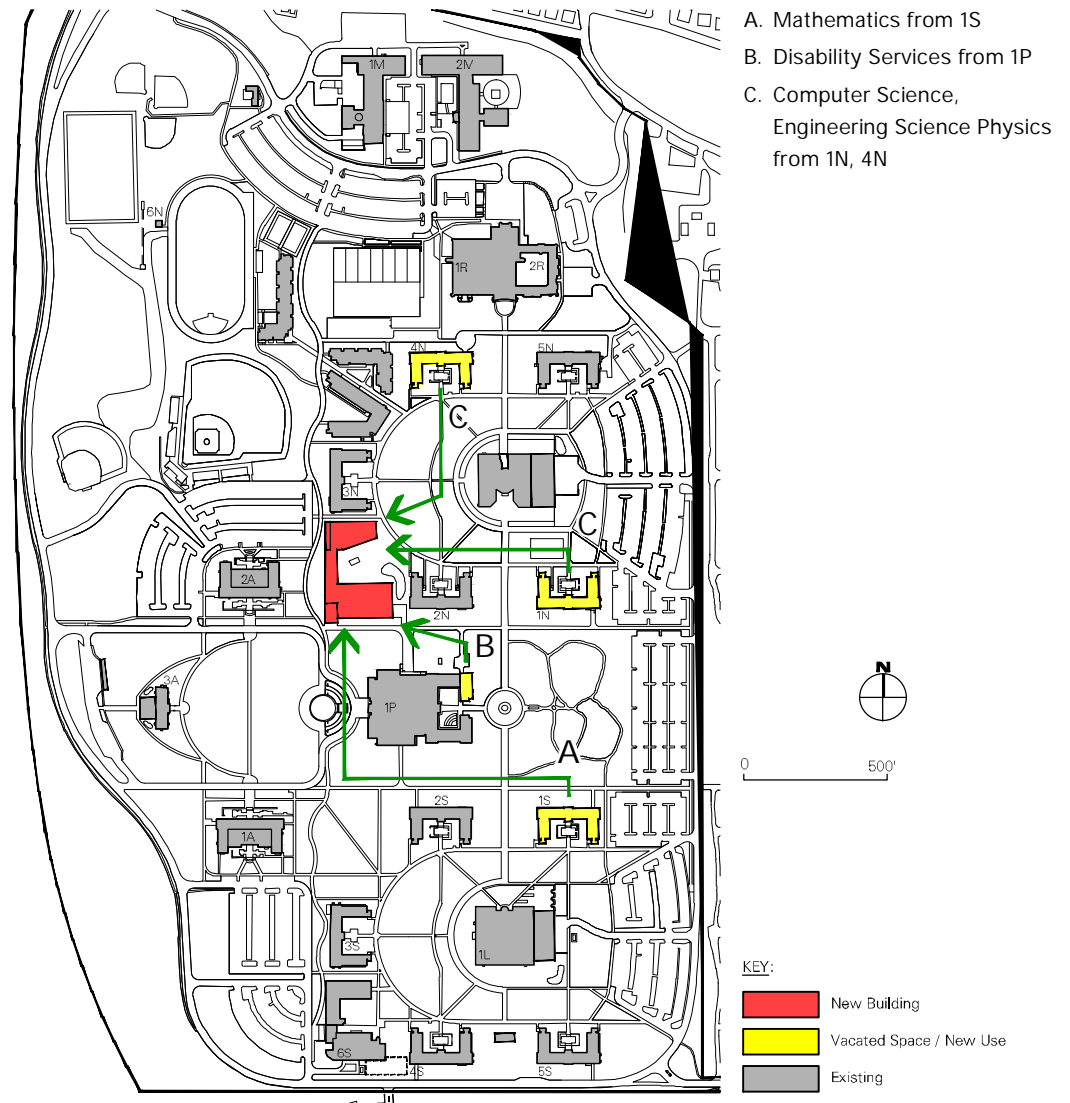
23 Electrical Substation		
<i>Alternative to new substation in IHPCC scope:</i>		\$24,925,000
<i>Replace / expand existing substation **</i>		
24 Electrical Distribution Upgrade Campus-Wide **		
		\$29,373,000
25 Campus-wide HVAC Controls Upgrades		
<i>Controls & HVAC Campus-Wide **</i>		\$21,105,000
26 Additional campus fire service upgrades		
<i>Controls & HVAC Campus-Wide **</i>		\$21,105,000

TOTAL D: INFRASTRUCTURE PROJECTS (PROJECT COST) **\$96,508,000**

D. Phasing Considerations

The IHPCC project permits re-organization of select academic departments that can enable a series of subsequent improvements in later phases in the north and south academic quadrangles. These include renovations to convert the interiors of Building 1N and Building 1S to provide more instruction space, as general classroom buildings. In turn, this would allow adding faculty offices for other departments by conversion of classroom space to office use, relying on the new classroom buildings. While the College would prefer building the entire proposed IHPCC program (100,000 ASF / 175,000 GSF), if funding constraints required building this project in two phases, the configuration of the concept design was developed to permit phasing if needed.

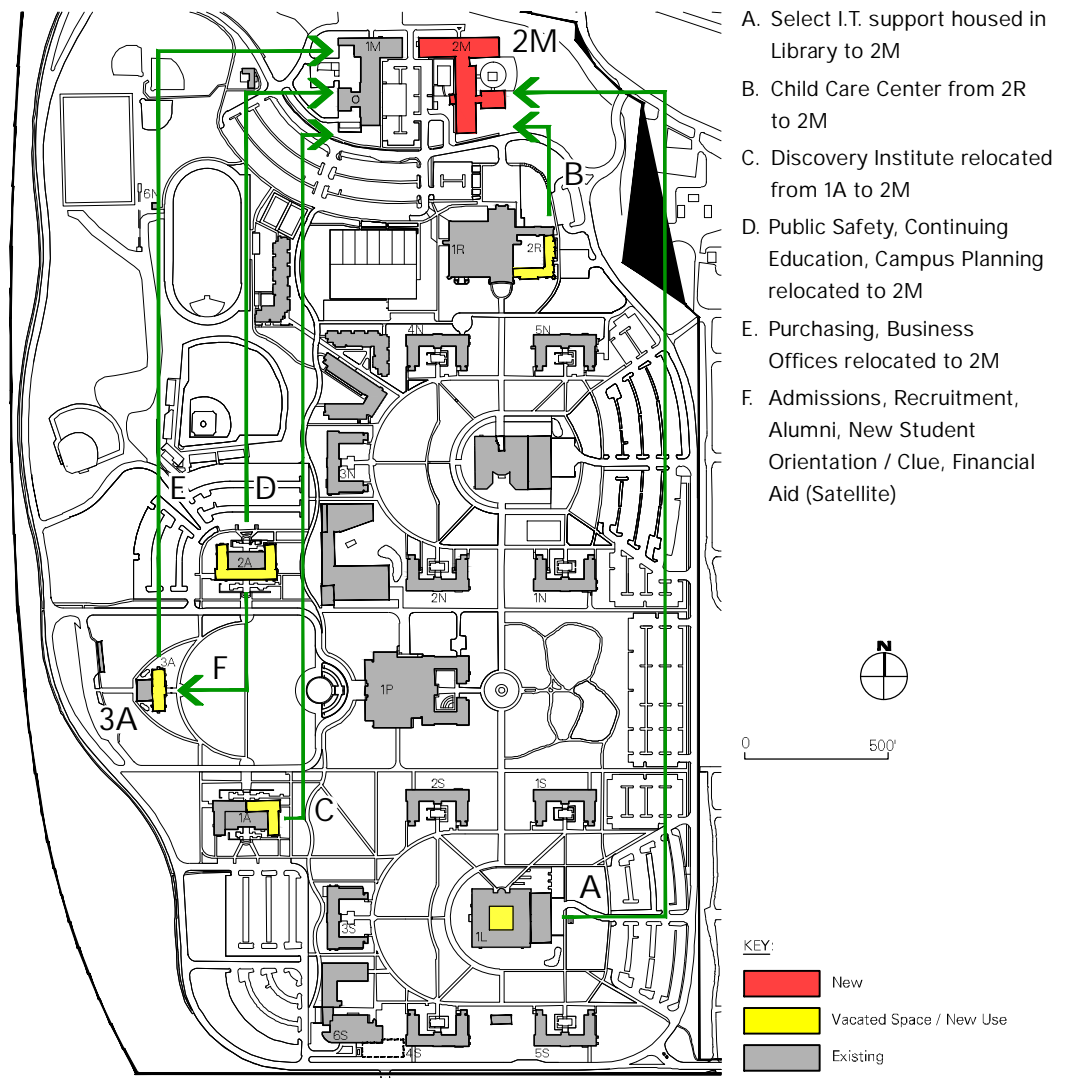
Department moves to IHPCC



The Building 2M project is required before subsequent phases can occur to create the Welcome Center in Building 3A, to create the enhanced Student Service Center in Building 2A and to increase administrative space in Building 1A. Likewise, expanding recreation space is a subsequent phase of work, permitted by relocating the Child Care Center.

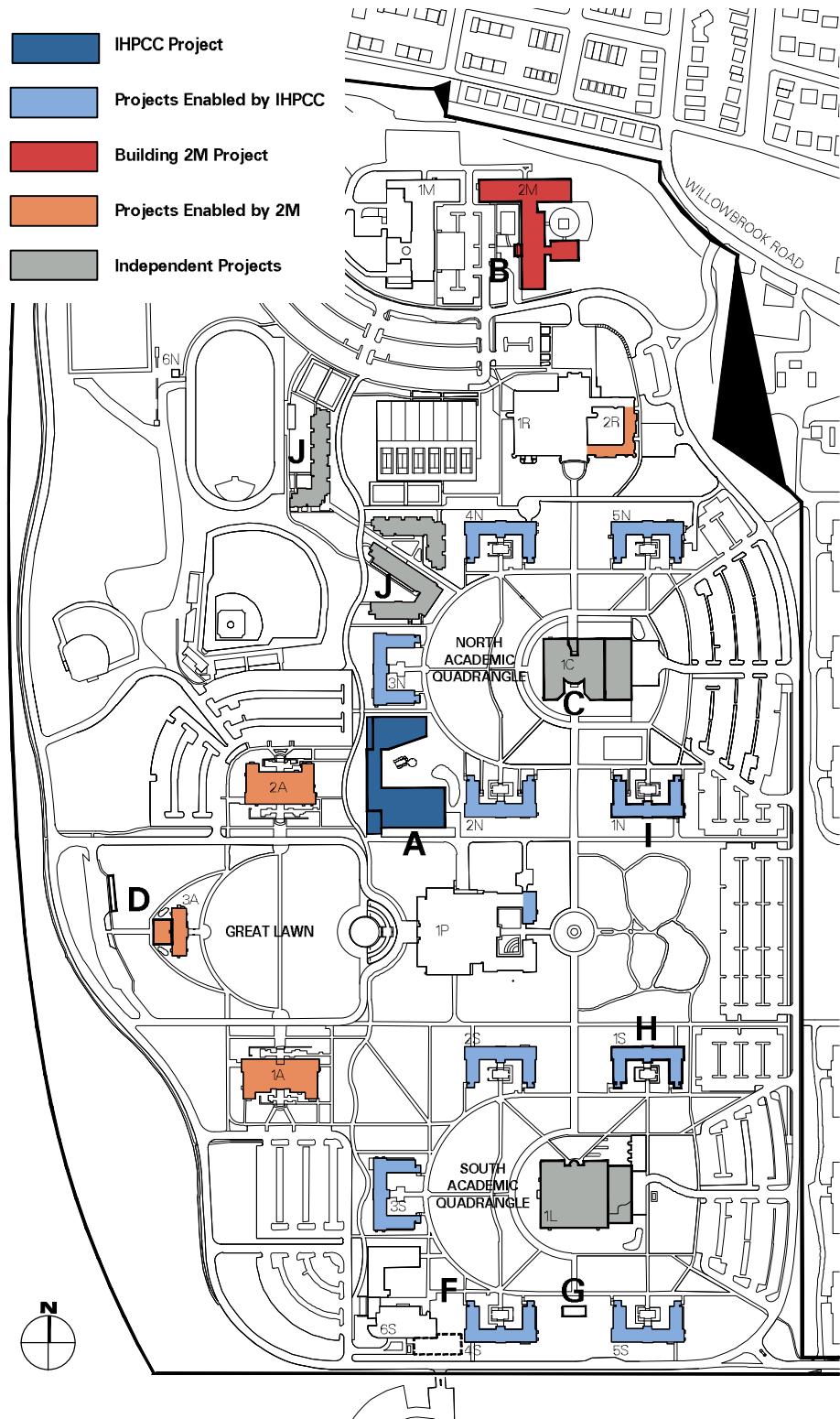
The Campus Center Expansion and Transit Center could be realized as stand-alone projects, since they are not dependent on other development projects. Likewise, most site, roadway and landscape projects can be realized as projects independent from other phases of work as funding permits. Specific site and landscape projects associated with building projects would be constructed with that project phase, and their estimated cost is formatted in this manner.

Department moves to Building 2M and Welcome Center / 3A



Project Connectivity

- IHPC Project
- Projects Enabled by IHPC
- Building 2M Project
- Projects Enabled by 2M
- Independent Projects



As noted in the infrastructure section, some upgrades are necessary to support proposed building developments. Others are recommended in any case in order to conserve energy and provide more reliable service.

E. Long-Term Development Potential



Following construction of the development plan in the Master Plan Amendment, consideration long-term development potential still remains on the CSI campus. The planning team studied several preliminary alternatives for adding up to 950,000 additional gross square feet to the existing campus and found several ways this could be done. The plan opposite shows remaining potential development sites for new buildings or additions. Many campuses are forced to utilize surface parking lots for development sites over time. This could be possible at CSI if a public/private fund and market conditions permitted in the future to building structured parking and thereby reduce the amount of campus land needed for parking. In the very long term, as available building sites are reduced, redevelopment of existing 2-story academic buildings, or additions to them as proposed in the original 1986 Master Plan, could be considered to increase campus density and capacity further.

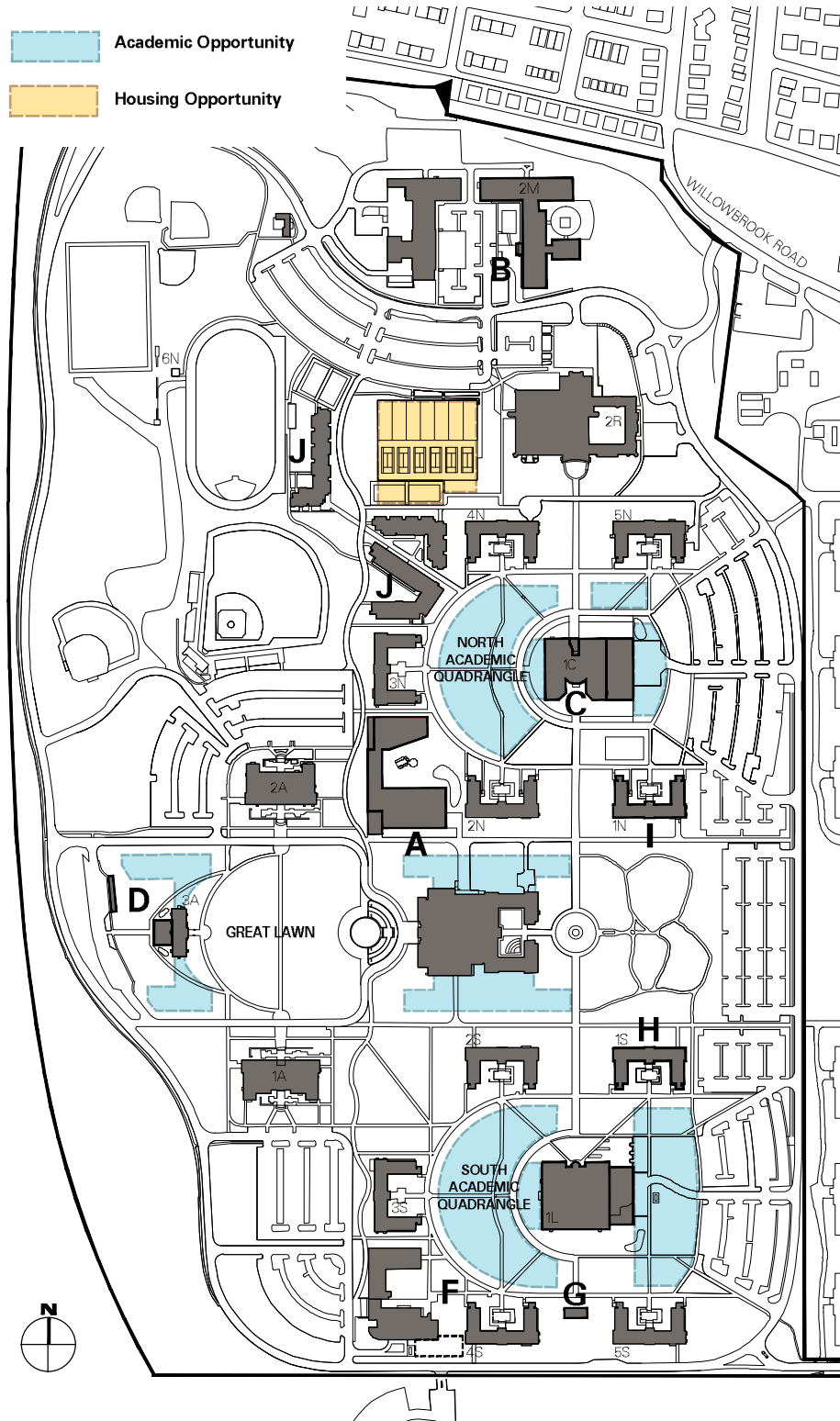
If expansion of campus housing is needed in the long term, redevelopment of the current tennis bubble and tennis courts site would provide a logical expansion adjacent to the first planned phase of housing. This new development could also create a vibrant gateway into the campus core for those entering from the north, and locate the additional housing near dining and recreational amenities. Land between buildings 1R+2R and adjacent buildings could be used for relocating the tennis courts.

Alternatives Phase Long-term Development Studies



Long-term Development Opportunity Sites

-  Academic Opportunity
-  Housing Opportunity



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