BRONX COMMUNITY COLLEGE

COMPREHENSIVE PLAN: 1975-1980

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Comprehensive Plan 1975 - 1980
Prepared for
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The City University Construction Fund
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Acknowledgements

It is indeed fitting that the opening statement of this Report consist of the Architect-Planner’s sincere expression of appreciation to those who contributed so completely to the preparation of this Comprehensive Planning Study. Truly, all members of the professional and technical staffs of the Dormitory Authority of the State of New York, City University of New York and Bronx Community College assigned to this project made vast contributions in fulfilling the planning process, the results of which are the subject of this Report. In particular, we wish to thank Chairman John B. Johnson and Executive Director William A. Sharkey of the Dormitory Authority of the State of New York, Chancellor Robert J. Klibee, Deputy Chancellor Seymour C. Hyman and Vice Chancellor Peter S. Spiridon of the City University of New York as well as President James A. Colston, and Deans Bernard P. Corbman and Paul Rosenfeld of Bronx Community College for their continued efforts in the support of our work.

It is our earnest hope that through our mutual efforts, this Report accurately and concisely reflects the best obtainable solution to the question of properly adapting the Heights’ Campus for the use of Bronx Community College.
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This Comprehensive Planning Report is presented as a utilization analysis of the University Heights Campus of Bronx Community College, which, until 1973, was primarily the engineering and science campus of New York University. The Report will address itself to the condition of the existing facilities and how these facilities relate to the educational needs of the Bronx Community College students. The Report will further analyze the solution to any deficiencies in the physical plan and will recommend corrective work, either in the form of alteration and/or additions to existing structures or by means of the construction of new facilities. This recommended work will be “phased” so as to allow for the continuous operation of the institution during the anticipated five year work period without seriously disrupting campus life.

It is trusted that this Report will serve as a vital tool in properly converting the University Heights campus to the particular needs of Bronx Community College.
The College and Whom it Serves

Bronx Community College, was founded in 1957 to meet the growing need for increased higher educational facilities in the Borough. It was one of the seven original undergraduate colleges which were joined together in 1961 to form The City University of New York.

As a "community college" it fulfills the special role that its name implies – that of an institution designed to meet the specific higher education needs of the community it serves. Towards this end the College maintains a continuous dialogue with community leaders and civic groups to enable it to remain aware and responsive to those needs.

The College seeks to provide quality higher education that will enable each student to realize his full potential. The education offered at Bronx Community College enables graduates to participate creatively and responsibly in a rapidly changing society, and to build solid foundations for future careers. It offers a choice of two-year programs leading to the associate degree. The transfer programs prepare students for further study toward the baccalaureate degree, or professional and graduate studies. The career programs lead either directly to employment in a skilled professional or technical or to continued education toward a baccalaureate degree.

Degree programs offered day and evening include: Business Administration, Business Teaching, Business Career, Chemical Technology, Mechanical Technology, Engineering Science, Electrical Technology, Education-Child Care Associate, Liberal Arts and Sciences, Medical Laboratory Technology, Nursing, Performing Arts, Music, and Secretarial Studies.

Bronx Community College serves the entire Borough, both on and off its central campus. It is open also to those from other parts of the City and State. The student body, therefore, reflects the broadest possible range of people; both young and old, rich and poor, and all ethnic backgrounds.

At its most recent commencement, the College conferred 1450 associate degrees upon young and older adults in academic areas varying from Liberal Arts to Nursing. In addition to the matriculating student the College reaches adult citizens of the Borough who wish to enrich their lives through the diversified academic, career-oriented and creative arts programs offered.

The College's Office of Evening and Continuing Education represents an alternative for those who must combine their occupational and family commitments with their desire for further education.

Continuing Education and Community Service programs offer a broad scope of courses for self-enrichment and career objectives. Public and private agencies, voluntary organizations and commercial firms desiring educational upgrading opportunities for members, employees, or community residents, may call upon the College for a variety of services and assistance. Examples of the constantly growing number of projects include a Multimedia First Aid program, Municipal and State Civil Service courses, the Education for Aging Center, the Adult Learning Center, and the Mini-Semester.

In order to provide its vital civic services the College maintains a full-time faculty of approximately 700 and an adjunct staff of 550. Students receive the guidance of experienced professional counselors in selecting the programs best suited for their goals.

Extracurricular activities represent an integral part of the student's educational development and the College offers a complete spectrum. Students may fulfill their talents and interests by participation in numerous campus clubs, organizations and social and cultural functions.

An extensive athletic program provides opportunities for participation at intercollegiate, intramural and recreational levels.

The College's contribution to the cultural life of its students and the Borough is felt through the Bronx Community and College Choir, the Bronx Community and College Symphony, theatre and dance groups, and most of all through the numerous special events which annually bring visiting professional talent to the campus.

Bronx Community College, in serving its constituency, offers programs and events for all age and economic groups and therefore, by its very vital existence, enriches the lives of the citizens of the Bronx.
The Campus Location and History

The Bronx Community College campus occupies a historically significant site. At its western end near the memorial flagpole, artifacts from the American Revolution were recovered as a result of "digs" conducted in 1972. This spot, with its commanding view of the Harlem River, was the scene of Fort Number Eight, a British outpost during the War of Independence.

As the County and City of New York developed, the neighborhood in which the campus is located became known as the "University Heights" section of the Borough of the Bronx. This geographic description was not created by Bronx Community College but rather by its predecessor, New York University, which acquired the property as a home for its Engineering School soon before the turn of the century.

As the name implies, the campus is situated atop a plateau overlooking the Harlem River to the west, the Fordham section to the north, and the Tremont section of the Bronx to the southeast.

It is located in the west central section of the Borough generally bounded by University Avenue, West 180th Street, Osborne Place, and Sedgwick Avenue. This places it within Community Planning District 5, a largely residential district composed of a mixture of single family and multiple dwelling residences, with a limited number of local retail shops. The architectural character and "scale" of the neighboring community and the parklike environment of the campus are compatible and mutually complementary.

Over the years the 50-acre campus evolved from the original collection of inherited residences and stables to a diverse complex of some thirty-three buildings, ranging in size and character from Gould Memorial Library (a New York City Landmark) to Technology II, a modern 182,470 sq. ft. science facility. With all of the physical development, completed without any real regard to a "Master Plan," the campus yet remains a park-like setting in a city of concrete and asphalt.

During the years of development the campus acquired a diverse architectural vocabulary. Quite unfortunately not all of it is pleasing. Where possible, it is the goal of this Comprehensive Plan to upgrade the less worthy structures in an effort to create architectural harmony on this grassy knoll overlooking the Harlem River.

The buildings, however, are only a part of the story of the campus. The outdoor spaces are equally important in creating a serene, yet stimulating, academic atmosphere. The existing campus outdoor spaces can be generally categorized into two groups: natural and developed areas.

The natural spaces include the tree-filled southwest corner of the campus, in the areas adjacent to South Hall, as well as other secondary areas near Gould Residence and west of the Gould Memorial Complex (Hall of Fame Colonnade). As will be noted in the "Proposed Solutions" these natural areas will provide the faculty and students with areas of repose where they can find places of quiet and solitude for meditation, study, or casual conversation.

This, then, is the campus now occupied by Bronx Community College. Its' purchase in July 1973, by the State Dormitory Authority on behalf of the City University for the use of Bronx Community College culminated years of effort to provide the College with a desperately needed central campus facility.

From the day it welcomed its first class in February, 1959, the College enjoyed a steady growth, reaffirming the vision of those who had called for its creation. Additional facilities were acquired in a struggle to keep up with the critical need for space; but the necessity for a central campus became increasingly apparent. By Fall, 1972, the rapidly expanding College was occupying seven additional centers within a six-block radius of its main building at 120 East 184th Street.
The purchase of the new campus placed solution of these spatial difficulties within reach. Since moving to the Heights, Bronx Community College has been making use of existing facilities on an interim basis; many have had to be used for purposes other than those for which they were intended resulting in less than optimum conditions for learning.

Thus, until these conditions are corrected, the College is still some distance from its goal of a modern well-planned learning environment for its students and faculty.

How the existing campus environment, both its buildings and outdoor spaces, is to be developed to achieve this goal is fully discussed in the chapter of this Report entitled "The Proposed Physical Solution."
Above: The Mall & Gould Memorial
Left: The Main Gate
Below: Hall of Fame Colonnade
Transportation

The campus may be easily reached by bus, subway or automobile. As the accompanying map illustrates, the College is served by both the Independent (IND - "D" train) and the I. R. T. (Woodlawn No. 4 train) rapid transit systems, with stops located at Tremont and Burnside Avenues, respectively. They connect directly with the Burnside Avenue bus (Bx. 40) which has a "stop" approximately two blocks away from the main pedestrian entrance on University Ave. Students arriving from the north may use the University Avenue bus (Bx. 12). The University Heights station of the Penn-Central Railroad is within walking distance.

The campus will be provided with more than 800 on-site parking spaces for use by both day and evening, full and part-time students. As illustrated, those students arriving from the East Bronx will most probably use Fordham Road and Burnside Avenues as the most convenient "trans-borough" avenues. Those arriving from other parts of the metropolitan area will use the Cross-Bronx Expressway with exits at both Jerome Avenue and the Major Deegan Expressway, each located within minutes of the campus vehicular entrances. Alternatively, those arriving from the north may conveniently reach the campus via the Major Deegan Expressway exit at Fordham Road, located three minutes from the campus.

By current standards of urban transportation, both public and private, the Bronx Community College campus is conveniently available to those whom it serves.
The Neighborhood

Zoning Map

The accompanying "zoning map" and photographs illustrate the land use of the "University Heights" neighborhood surrounding the campus.
Above Left: Private Houses North of Campus

Above Right: Neighborhood Apartment Houses

Below Left: Private Houses East of Campus
The Existing Campus

The College is presently housed in many diversified structures ranging in architectural vintage from the neo-classical Gould Memorial "Landmarks" grouping to the contemporary high-rise Technology II science facility. Because of their varying ages and styles the structures reveal individual identities that tend to lend themselves more readily to particular program functions.

It must also be noted that because of the long history of the campus, many of the older structures are in need of immediate corrective maintenance in order to deter any more rapid degree of deterioration than that which has been evident during the past twelve months. In general this corrective maintenance is limited to three (3) broad categories; i.e., window replacement, roof replacement or repair, site utility distribution. It is therefore the recommendation of this report that this work be performed during the early stages of the construction program as illustrated on the chart entitled "Implementation of the Plan", contained later in this Report.

Aside from these high priority corrective items it was found that most buildings are in generally acceptable physical condition for continued use until such time that they are to be rehabilitated as scheduled in the "Implementation of the Plan". This is not to imply that the spaces are functionally or aesthetically suited to the needs of the College. Except for the most recently constructed academic structures, namely Tech I, Tech II, Gould Annex and New Hall, the structures contain antiquated utility systems, including plumbing and ventilation. In no case, except for Tech II, is there a central air-conditioning system, notwithstanding the fact that school is in session eleven months of the year.

When analyzing the existing structures their are two other aspects of the campus that must be taken into account; those being that N.Y.U. was a predominately male engineering educational institution with a large "on-campus" residence census. As a result we have found a serious deficiency in female facilities for Bronx Community College students; a situation that will be attended to through the early start remedial work and more fully during the building-by-building rehabilitation of the campus.

As a Community College the institution does not have a curriculum as heavily oriented toward engineering and the sciences as did N.Y.U. We have, therefore, found an over abundance of laboratory space most of which is located in Tech I, Tech II and Nichols, the latter being some years old and in ill repair.

It must be further observed that as a residence institution N.Y.U. "left-behind" three dormitory buildings, namely, Gould, Loew and Silver Hall. As a component of the City University, Bronx Community College has no residence requirements and the dormitories, therefore, must be put to some other functional use within the context of the College's program.

This Report will demonstrate that the existing campus buildings can, through judicious planning be aesthetically and functionally utilized to house the programs of Bronx Community College.
Space Allocation Summary

The following summary illustrates the area recommendations of the Final Comprehensive Report, in tabular form, for each of the mandated program functions in the appropriate building or buildings.

The names and numbers of the buildings are listed horizontally at the top of the tabulations, the program functions (plus the unused assignable space) are listed vertically at the left side of the chart. The amount of net square feet used for each function in each building can therefore be found in the box formed by the intersections of the listings.

The building gross square feet and the net to gross ratio for each building is given at the head of each column; the building net square feet is totalled at the bottom of each column. Where relatively high "net-to-gross" space ratios occur in altered older buildings, they are, in general, due to the inclusion of unassignable attic spaces, excessive depths of exterior walls, as well as extremely large pedestrian circulation areas. In the more recently constructed facilities, the normally accepted ratios are moderately exceeded because of the preponderance of service facilities in former residence halls as well as excessive mechanical equipment and public circulation spaces, all of which tends to dissipate the building's space efficiency.

For comparison purposes, the summation of the various net square feet provided is indicated in the "Provided" column at the right, alongside of which appears the net square feet mandated by the program, with corresponding totals obtained by adding the contents of the respective columns horizontally and vertically. For the buildings listed the total net square feet provided is 656,793 and the total gross square feet is 1,214,800.
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The Proposed Physical Solution

The central thrust of this comprehensive building use analysis is the optimum adaptation of existing campus buildings for the efficient occupancy by Bronx Community College through a thorough study of its Approved Space Program.

This analysis, and resulting recommendations, have resulted from intense on-site observations of the physical campus conditions, including traffic and pedestrian movement patterns as well as regional transportation facilities and neighborhood environmental impact.

These on-site observations have revealed that the vast majority of students arrive at the campus via public transportation located to the south and east of the campus. For this reason we propose that the existing University Avenue pedestrian entrance be expanded and upgraded to form the main foot approach commensurate with the dignity of the Institution.

Upon arrival at the College the student will be accommodated by the conveniently located offices of the Counseling Department as well as the Dean of Students, each of which will be located adjacent to the new "College Portal".
Continued exploration will reveal to the student that the campus is arranged in five (5) neighborhood groupings; i.e.:

- Academic
- Administrative
- Athletic
- Student Support
- Theatre and Arts

The Academic grouping is situated in existing buildings to the south of the main "College Boulevard", which will serve as the life-stream of campus movement. This "Boulevard", or pedestrian spine, now exists and will be improved with a series of nodes, or gathering places, consisting of information kiosks, seating spaces, water, light, etc. These nodes along the "Boulevard" are transitory points connecting the easily identifiable neighborhoods that exist at present in a somewhat confused and chaotic way. This chaos is caused by a mix of materials and forms that do not lend unity to a campus feeling. Paving, curbing, outdoor lighting and materials all lack an integral sense. The pedestrian flow plan will attempt to create this unification through design and material selection.
The Proposed Physical Solution

Located in existing or expanded buildings, the various Departments have been situated according to both their physical requirements as well as their direct inter-relationships. Accordingly, Bliss is proposed for use for Engineering because of its architectural characteristics, whereas Tech II is proposed for use by Physics, Biology, Chemistry and Mathematics because of its readily adaptable science hardware. Conversely, Nichols Hall, because of its inherent spatial flexibility and proximity to the Library has been found suitable for the History and Social Science Departments. By locating the Campus Bookstore in the Nichols Lecture Hall it will be easily accessible to students travelling along the “Boulevard” when either entering or leaving the campus.

To complete the humanities “subgrouping,” modern languages will be housed in New Hall, an existing classroom building.

Central to the Campus Academic Group will be the expanded Tech II Sage Library. Through expansion, including the annexation of Sage Engineering for Inter-Department Support and the Tech II “pilot plant” for Library reserve collection, the proposed reference and circulating library will serve as a nucleus for all of the academic departments.

In order to balance the “academics” about the nucleus, the remaining teaching disciplines have been located in existing or expanded facilities to the west of Tech II. The Nursing Department has been housed in Tech I and Silver Hall because of the availability of lab space in Tech I, and adaptability of dorm rooms to faculty offices and classrooms in Silver Hall.

In addition to Nursing Offices, Silver Hall can be prudently employed due to its restrictive structural system, as classroom and office spaces for the Speech, English and Special Education Services Departments.

Because of its immediate inter-relationship to the Administrative complex (due to their “shared” computer hardware), the Data Processing and most of Business and Commerce are proposed for occupancy in Tech I together with Begrirsch for its required demonstration laboratories. Secretarial Studies, inasmuch as it is related to Business and Commerce, is to be adjacent located in the expanded Havemeyer Hall which provides the lab space needed) together with some Business and Commerce Space.

The College’s Administrative center is to be located within the stability of the Historic Gould Memorial landmarks complex. The Gould Library complex together with the flanking Language and Philosophy Halls will contain the President’s Office (in combination with the Deans of Administration and Faculty), Supportive Administrative Offices, Registrar and the College Business Office. The Rotunda is ideally suited for the “public” functions of Registration due to its adaptability for accommodating large groups of students on an interim basis. At other times, the Rotunda can be efficiently used for public and community functions, while the multi-leveled galleries can be used for College, University and possibly, municipal archives. The present Lecture Hall, located below the Rotunda, should be maintained for its potential multi-functional availability.
Ohio Field, located immediately North of the Health and Physical Education Building (Gym), will serve as the mainstay for outdoor athletic and recreational activities. As such, it will co-function with the expanded Gym which will contain the Programmed Health and Physical Education facilities. The required addition, proposed for construction on the North side of the existing structure, will serve not only to fulfill program requirements but also will serve to more fully define the "College Boulevard".

Student activities, an integral part of the student development program, is to be located in Gould Center, geographically central to the various campus "groups". Since this building already contains many of the programmed requirements, it can readily be altered and expanded to essential compatibility with the College's needs. Its existing auditorium cannot be altered to meet the Program's Theatre requirements but will be altered to augment the College's need for student Meeting and Crafts Rooms. Through judicious planning, the Student Center may also serve as a "19th hole" for observing Ohio Field activities.
Plans of Altered Buildings

Following are preliminary schematic plans of the buildings proposed to be altered in Phase I of the construction program. The basic purpose of these plans is to ensure that the space required by the approved Program for each College function is indeed available to house it in the selected building.

Abbreviations Used

CL........... Cleaners Clo.
CR........... Classroom
CONF........ Conference Room
FO........... Faculty Office
LAB........... Laboratory
PREP........ Preparation
SEC........... Secretarial
SEM........... Seminar Room
ST........... Storage
The College “Mall” is located between the natural and developed outdoor spaces. As proposed, the Mall will be enhanced through the re-grading and sodding of the “soft areas” and the reshaping and repaving of the perimeter walks and sitting areas. When completed, the Mall will become the campus “crossroads” and a meeting and gathering place for students and faculty. In addition, the Mall will be further redefined by the proposed construction of the Bronx Community College Theatre (and Music and Arts Departments) on the North campus, axially related to the Mall. This facility, made necessary because of the non-existence of any standing structure adaptable for this use, will tend to complete the weave of the campus fabric inasmuch as it will balance the geographical activities of the student body.

The separation of the automobile from the inner campus pedestrian areas would solve considerable problems caused by the auto-biped conflict. This can be accomplished by allowing the auto to enter parking lots that are located close to the control gates and eliminating the cross-campus auto movement on what is essentially the pedestrian path system.

The gates on the south side of the campus (W. 180th Street) should serve those lots that are near the south sides of Bliss-New Hall and Alumni Gymnasium-Loew Hall. The north side of the campus has off street parking provided at a large lot on Loring Place and additional — future parking on the site of the Army Reserve property. V.I.P. parking is provided by immediate access to the lots through the main gate control point. Peripheral movement in search of a parking space will be done on existing city streets rather than the internal campus road system.
Domestic & Fire Water Supply

The site is served by the New York City Department of Water Resources which has an adequate network of water mains in the peripheral streets bordering the campus. The existing campus fire water protections systems are inadequate in size and do not provide adequate flexibility to facilitate repairs and maintain simultaneous service. It is recommended that a new 10 inch water main be installed, passing through the campus from University Avenue and interconnecting to an existing 10 inch water main from Sedgwick Avenue. All existing water mains which cross or run adjacent to this main will be interconnected to same, increasing their capacities and providing service from several directions to permit continuity of service when portions of the system are closed for repairs. Additional fire hydrants are proposed and will be spaced at a maximum of 300 foot intervals.

Gas Service

The Campus is served by a series of gas mains located in the peripheral streets that are provided and maintained by Con Edison. The existing “on-campus” gas mains are the responsibility of the College and have adequate capacity for the program, although certain of these lines are seriously deteriorated and require replacement.

It is proposed that new 3 inch gas service be installed to serve the Selective Energy Plan for ignition only and will not be used for secondary fuel. The new 3 inch gas service will connect to an existing “on-campus” gas main and does not constitute additional gas usage loads for the Campus.

Con Edison has indicated that at the present time, gas not available for use in the Selective Energy Plant as a Secondary Fuel. If and when gas will become available for this purpose, a new main connecting to the Con Edison street main should be extended into the Campus for use in the Selective Energy Plant.

It is proposed that gas services to Bliss, Havemeyer, Language Hall and Loew Hall be capped and abandoned, since these buildings will no longer require gas service.

Building Plumbing & Fire Protection Systems

Each system was analyzed to determine the extent of changes required to meet the program for the campus. Some buildings required additional toilet room facilities and electric water coolers. All buildings require the addition of toilet room fixtures and electric water coolers to accommodate handicapped students. Several buildings require the addition of fire standpipe and Sprinkler Fire Protection Systems. Criteria used to determine the extent of the work included in the type of construction, the change in occupancy type, the requirements of the New York City Building Code and OSHA requirements.

Storm and Sanitary Sewers

The campus sewers and the New York City sewers bordering the campus are combined sewers. The campus sewers are overloaded and are inadequate. The city sewers bordering the campus with the exception of Sedgwick Avenue and Loring Place do not have adequate capacity to receive additional loads. It is proposed that a new 12 inch sewer be installed in West 180th Street to carry the flow from the new parking areas to the existing 15 inch sewer in Loring Place. Approvals must be obtained by the College to construct this sewer in West 180th Street. It is proposed that a new 12 inch sewer be installed west of Tech II and tied to the existing 18 inch sewer adjacent to Tech I to relieve the presently overloaded sewers which run in a northwesterly direction towards Sedgwick Avenue.

It is proposed that the existing sewers serving the existing Parking Areas north of the Mall and Gould Student Center be replaced with adequately sized drains, inlets and sewers.

The new Arts Center and MacCracken Hall will drain to a new sewer connecting to Sedgwick Avenue.

It is proposed that a new sewer be installed to drain the easterly parking areas to the city sewer at the intersection of the Hall of Fame Terrace and Loring Place.
Mechanical & Electrical Systems

Electric Service

The total estimated electrical design load is 10,000 KVA, which should register a half-hour metered demand of approximately 6,500 KW. After evaluating the electrical loads and the size of the campus, it was determined that all new distribution systems will be 480 volts, 3 phase, 3 wire. In order to minimize distribution costs, several existing Con Edision services with their associated distribution system, will be retained, revised or abandoned where required.

Electric service spaces will be provided in all new additions with an upgrading, as required, of existing buildings. They will contain dry type transformers to step down to 120/208 volts, 3 phase, 4 wire for building systems. Emergency source will consist of local, self-contained units, in order to provide for essential services.

Site Security Lighting

Additional site and exterior building security lighting will be installed in order to provide a higher security level.

Mercury vapor type lighting fixtures shall be used in order to match the existing types as well as to obtain the maximum maintained foot-candle levels.

Alarm and Signal Systems

The following alarm systems will be installed, or existing systems revised, within each building:

1. Fire Alarm system with central read-out.
2. Fire Department manual boxes on site and within central plant.
3. Plumbing alarm system.
4. Sprinkler alarm system.
5. Smoke detection system.
6. Watchmen tour system.
7. Security alarm system.
8. Burglar alarm system.
9. Multi media system (clock and program where required).
10. Selective Energy plant alarm system.
11. Central alarm control system.
12. Building power distribution, where required.
13. Building lighting distribution, as required.
14. Revised and new lighting layouts maintaining a maximum of three (3) watts per square foot.
15. Campus and public telephones as required.
16. Sprinkler and Smoke Detection systems shall be tied into Fire Alarm system.
17. Ventilating system detectors to activate Fire Alarm system and Fan Shutdown system.

HVAC Distribution

The existing high pressure (150 PSI) site steam distribution system extends from Bliss Hall to all buildings on campus. Because of its age and deteriorated condition and as a result of the energy studies, it will be replaced by a High Temperature Hot Water distribution system. Also, because of the addition of air-conditioning and the conversion of existing air-conditioning systems, it was decided to distribute chilled water throughout the campus. Since both chilled water and HTHW will emanate from the same new Selective Energy Plant, it is intended that they run parallel to and in close proximity to each other but not in the same conduit.

After considerable study, in conjunction with the proposed architectural development of the campus, it was decided to run the chilled water and High Temperature Hot Water (HTHW) in a generally east-west direction with sub-mains feeding in north-south direction. Each building will be fed with HTHW which will be converted to steam or low temperature hot water for heating, depending upon the type of system recommended for the building. Chilled water will be fed to all buildings that will be air-conditioned except for those which have their own chilled water generators, namely Tech II and Begrirsch.

Building HVAC

Each building was analyzed to determine the extent of changes required to meet the long range program for the campus. Some buildings, namely Technology II and Begrirsch, retained their existing heating and cooling systems. Some buildings retained their heating system and cooling was added. These included Technology I, Silver Community Center and Silver Hall. Some buildings required a complete change of system. Criteria used to determine the extent of the work included the type of building construction, the condition of the existing systems and the cost of system renovations.

Where existing unit ventilators serve classrooms for heating only they have been converted to unit ventilators capable of both cooling and heating. This applies primarily to New Hall.

Where a building will be completely altered, such as Nichols Hall, a new Thermal System is contemplated using hot water perimeter heating and air distribution for cooling and ventilating.

All other buildings will be heated and cooled using energy conservation Principles and good engineering practice.
Selective Energy System

The Selective Energy System concept is a modified Total Energy System, which retains the best features of the Total Energy Systems, such as high overall thermal efficiency and system reliability, and it does it at much lower first cost investment.

Whereas, the Total Energy concept presumes a complete independence from the Electric Utility Company, the Selective Energy concept requires the cooperation of the electric utility.

Selective Energy is “on-site” electrical power generation deliberately limited to a capacity to assume maximum utilization of the recovered waste heat from the prime movers, for satisfying the coincidental thermal loads (heating, cooling and hot water). Therefore, the thermal demands determine the magnitude of “on-site” electrical power generation. This usually results in an overall system efficiency in excess of 75%. During normal school days the electrical requirements are met jointly by the “on-site” generators and the participating electrical utility.

The Selective Energy Systems for the Bronx Community College has been deliberately limited to approximately 5,000 KW, representing a substantial portion of the total campus electrical load.

The “on-site” generators will support the following nearby buildings; Gould Hall, Loew Alumni Gym, Nichols, New Hall, Bliss, and the Gould Student Center. In addition, all the electrical loads within the central plant will be supported by the Selective Energy system.

The rest of the campus electric loads will be normally supported by the electric utility company’s supply network. The thermal demands (heating and cooling) of the whole campus would always be supported by the on-site central thermal plant.

On-Site Power Generation System

The on-site power generation plant will consist of four (4) 1375 KW gas turbine generators combined with four (4) – 14,000 MBTU/Hr. heat recovery units and the necessary accessories. The on-site power generators will support all the electrical load of a central heating and cooling plant and a substantial portion of the total campus electrical demand for selected buildings. The gas turbines will run on No. 2 fuel oil with a capability to use natural gas as an alternate fuel if and when available.

Heating System

The campus will be supported by a High Temperature Hot Water System (HTHW) generated in the Selective Energy plant. The HTHW will be produced in two ways:

(a) Through (4) gas turbine exhaust heat recovery units combined with a steam to HTHW converter system.
(b) The HTHW from heat recovery system will be supplemented with two (2) – 25,000 MBTU/Hr. HTHW boilers. The boilers will be fired with No. 6 or No. 2 fuel oil.

Through a new closed loop primary thermal distribution system, the HTHW will be distributed to each building, where it will be heat exchanged to provide hot water for space heating and for domestic hot water.

Cooling System

The central cooling system will also be a part of Selective Energy plant. The chilled water will be generated through the use of medium pressure steam and hot water. The cooling plant will consist of one (1)2,000 ton steam turbine driven centrifugal chiller and two (2) 1,000 ton absorption chillers supplied with hot water steam for the steam turbine will be supplied directly from the gas turbine heat recovery units while the absorption chillers will be supported from a HTHW to HW conversion system.

The chilled water will be distributed to the buildings within the program with the exception of Tech II. Tech II will be supplied with HTHW which will then be converted to HW or steam to support the absorption system within the building.

Domestic Hot Water System

The domestic hot water system would also be supported from Selective Energy Plant. The HTHW would be fed to each building and local HTHW to HW heat exchangers would produce the domestic hot water as needed.
Implementation of the plan

PROJECT PHASING AND COSTS
The intent of the plan is to provide as quickly as possible the permanent facilities called for in the approved space program for each activity of the College. However, for many reasons, the most important of which is continued functioning of the College with as little disruption as possible, it is necessary to perform the required work in two phases as shown on the phasing model below. The thrust of Phase 1 is to provide the classroom, laboratory, and office space for each academic department, as the first priority, together with some of the necessary support functions. Completion of Phase 2 will provide permanent facilities for the remainder of the support and administrative functions.

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| PHASE 2 | Bldg #30 Library Addition | $4,873,000 |      |      |      |      |      |      |
|         | #17/18 Gould Student Center Addition | 3,326,040 |      |      |      |      |      |      |
|         | #23 Alumni Gymnasium | 5,488,200 |      |      |      |      |      |      |
|         | - Demolitions & Site work | 2,445,935 |      |      |      |      |      |      |
|         | #11 Language Hall | 1,064,850 |      |      |      |      |      |      |
|         | #14 Philosophy Hall | 1,018,475 |      |      |      |      |      |      |
|         | #6 Silver Community | 257,950 |      |      |      |      |      |      |
|         | #25 New Hall | 865,975 |      |      |      |      |      |      |
|         | #20 Loew Hall | 2,013,350 |      |      |      |      |      |      |
|         | #13 Hall of Fame Colonnade | 573,550 |      |      |      |      |      |      |
|         | #12 Gould Memorial | 1,504,910 |      |      |      |      |      |      |
|         | #30 Library Alteration | 336,125 |      |      |      |      |      |      |
|         | Total Estimated Cost - Phase 2 | $22,774,360 |      |      |      |      |      |      |

|         | * TOTAL ESTIMATED COST | $58,391,520 |      |      |      |      |      |      |

* Estimated costs are escalated to the date of projected completion and include all fees and furnishings & equipment.