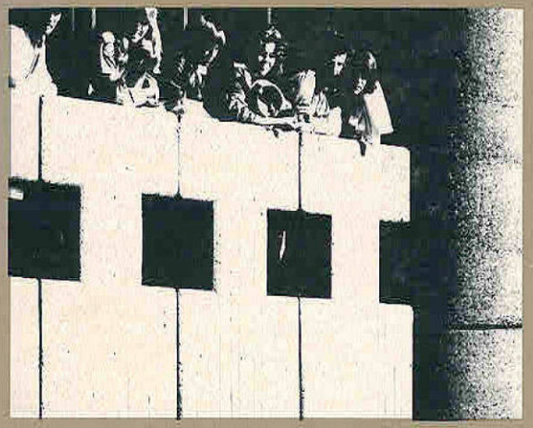
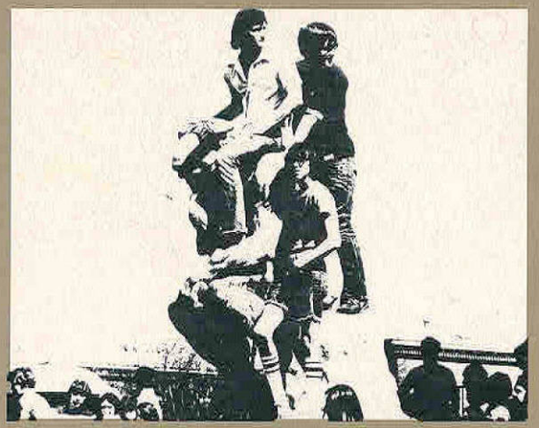
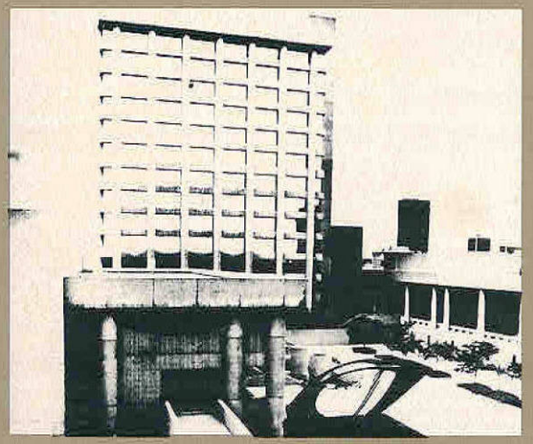
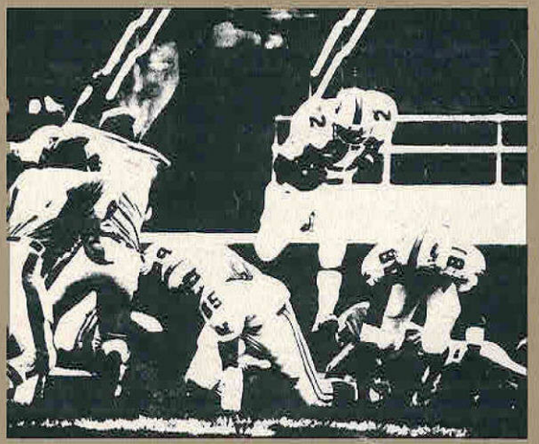
The University of Louisville Long Range Development Plans

1975

Belknap / Health Sciences / Shelby Campuses



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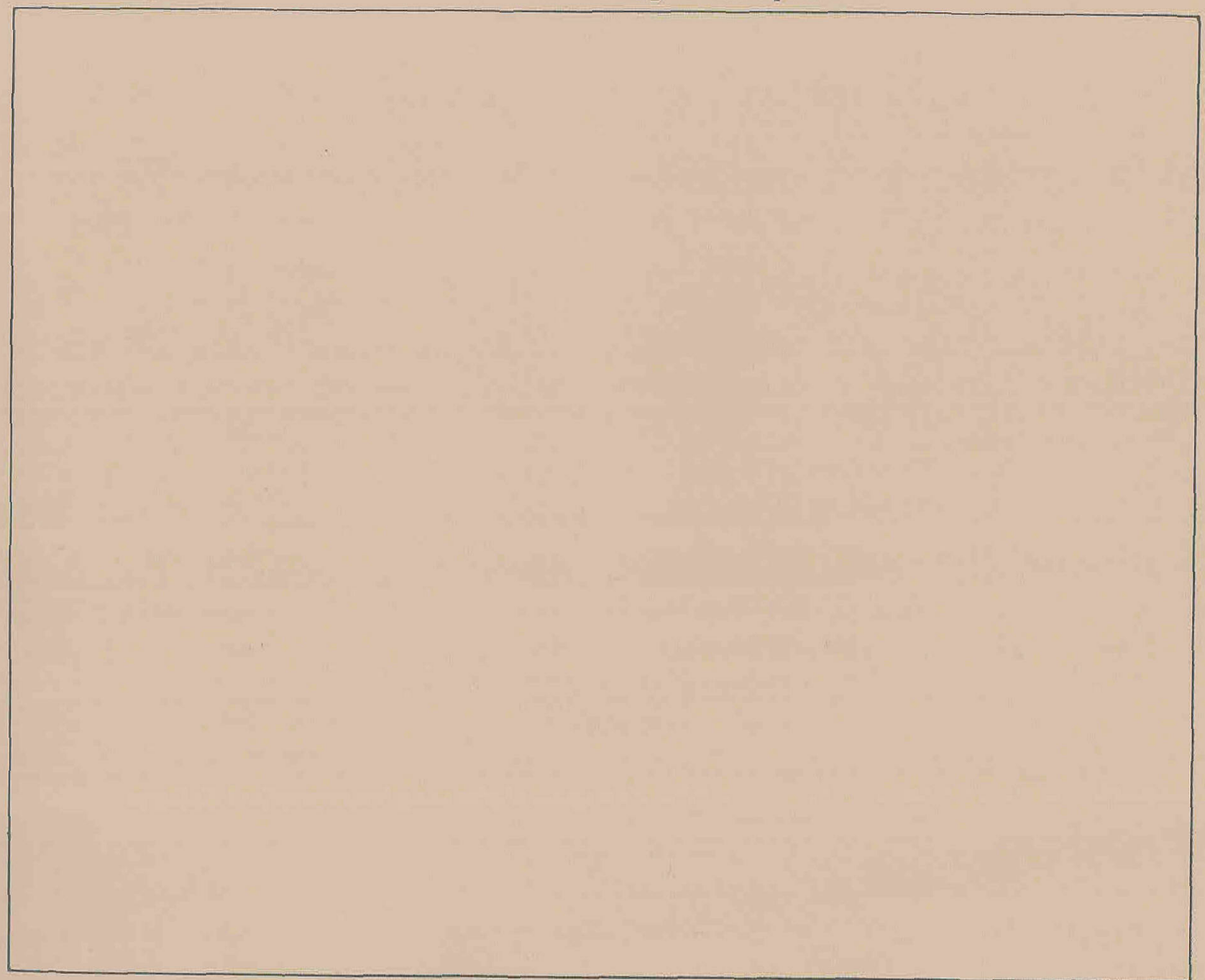

Illustrations

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The University

The Jefferson Seminary, founded in 1798, is the earliest link in a chain of events leading to the establishment of the University of Louisville. The state legislature provided for the founding of the Louisville Collegiate Institute in 1830 and chartered the Louisville Medical Institute in 1833. Both institutions began operation in 1837. These two institutions established the University as the oldest "municipal" university in the United States.

Belknap Campus

In 1846 a charter, enacted by the state legislature, authorized the establishment of three departments of the University: law , medicine and an academic department. On April 18, 1923, the University Board of Trustees agreed to purchase the Louisville and Jefferson County Children's Home property (The Louisville Industrial School of Reform). The purchase included approximately 40 acres and 15 major buildings and was named "University Campus." It was not until September 1925 that alterations and additions were completed allowing use of the new campus.

The campus name was changed in 1927 to Belknap Campus in memory of William R. Belknap whose family had earlier given property that, when sold, provided money for the purchase of the Belknap Campus site. University expansion of the Belknap Campus site has seen enrollment grow from 1,000 to over 14,000 students in 50 years. The campus now includes 116 acres and 75 buildings and serves as the main campus of the University of Louisville.

The Health Sciences Center

The state legislature chartered the Louisville Medical Institute in 1833, and the school opened four years later on a site at Eighth and Chestnut Streets. Under the charter of 1846 that established the departments of the University, the Louisville Medical Institute became the medical department of the University of Louisville.

The state charter of the Louisville Medical Institute provided for cooperation between the new school and the Louisville Marine Hospital. This tradition of using the city hospital as a teaching device has continued down to the present relationship between the Medical School of the University of Louisville and the Louisville General Hospital. Many competing medical schools operated in Louisville during the nineteenth century, but the University of Louisville Medical Department eventually proved to be dominant, and by the early twentieth century had absorbed its rivals. In 1908, the University's medical department moved from its old location at Eighth and Chestnut to occupy the building of its former competitor—the Louisville Medical College—at First and Chestnut. Administrative changes in 1922–23 changed the official designation from medical department to School of Medicine, and the school remained at First and Chestnut until occupation of the new Health Sciences Center in 1970.

In 1918 the Louisville College of Dentistry, established in 1887, became part of the University by purchase and reorganization. It remained in the original structure at Brook and Broadway until its relocation to the southeast corner of Walnut and Preston Streets in 1970.

Shelby Campus

Shelby Campus, a 243-acre site approximately 10 miles from downtown Louisville, is the most separated unit of the University. It was purchased from Kentucky Southern College in 1968 and presently consists of eight buildings (constructed in the 1960's) including the University president's home. The relatively undeveloped campus is adjacent to Shelbyville Road with easy access to I-64 and thus the other two major campuses of the University of Louisville.

With the entry of the University of Louisville into the state system of public higher education in 1970, the scope and thus the physical expansion program for the University began to take on regional significance as both a state university and a regional health care teaching facility for the western portion of the Commonwealth.

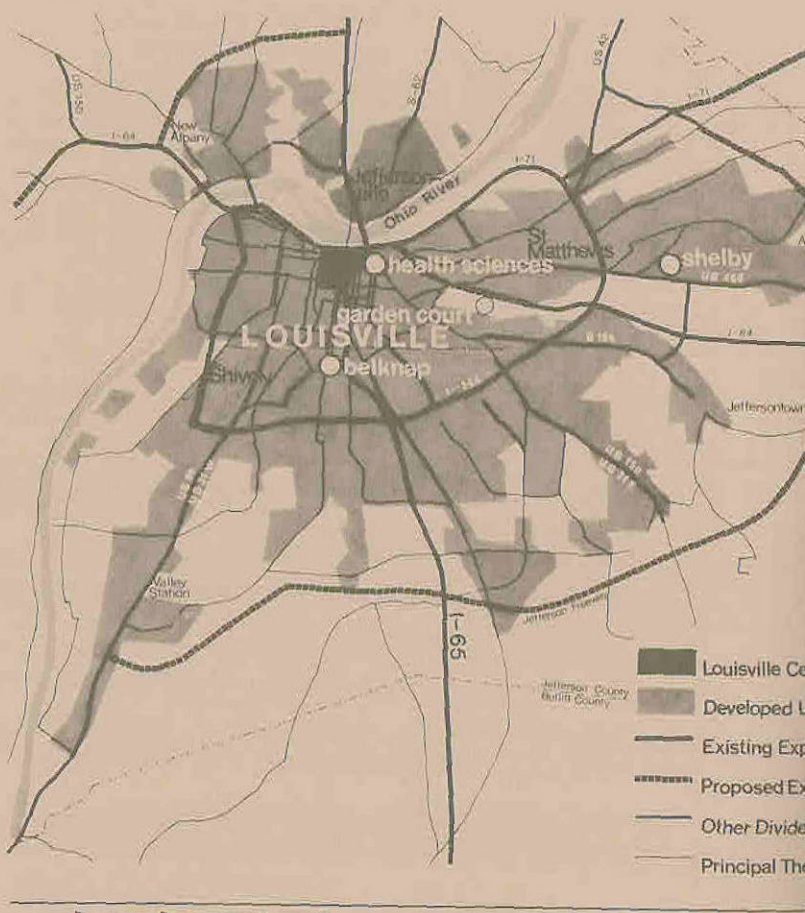
The Community

Jefferson County is the largest metropolitan area in the Commonwealth of Kentucky, with a population registered by the census in 1970 of 695,000.

Louisville became an incorporated city in 1828 and as early as 1829 moved to establish a public school–Louisville Male High School, the first school legally authorized by the legislature to grant a college degree. Thirty years earlier, the Jefferson Seminary began the chain of institutions that later became the University of Louisville–an urban institution which has had close historical and legal ties to the city of Louisville and Jefferson County, Kentucky. City and county governments recognized the need for quality higher education and have supported the University since its beginning. Their continued support will be necessary to further development of the University as it begins an era of major expansion in education and health care.

Public support and cooperation will be needed to implement the proposed plans. Government agencies at all levels as well as those of the private sector will be asked to work together to accomplish the physical expansion necessary to fulfill the academic goals of the University.

The University of Louisville has long been a part of higher education in Kentucky. A policy of public support through the use of public funds has seen the steady increase in the Commonwealth's portion of the support for nearly a quarter century. The next 25 years will determine the success of this long cooperation.



regional context


The Central University Area
Louisville Center City
HEALTH SCIENCES CENTER
Growth beyond 1990
Louisville Medical Center
Old Louisville Preservation District
BELKNAP CAMPUS
Kentucky State Fairground

Comprehensive Facilities Development Plans

A contract for the Comprehensive Facilities Development Plans for the Belknap, Shelby and the Health Sciences Center Campuses of the University of Louisville was entered into in March 1974. Academic programs, enrollment projection estimates, and facility evaluation were begun by the University in 1973. On the basis of the state contract requirements and these preliminary studies a proposal was outlined for a more comprehensive analysis of the University's needs. The proposal was structured into five phases. Each phase was presented orally and graphically and summarized in Progress Reports as follows:

- Existing Conditions Analysis
- Building and Utility Evaluation
- Development of Options
- Preliminary Plan
- Final Long Range Plan

During the course of the planning the University redefined its needs and goals, developed a preliminary academic plan and re-evaluated enrollment projections for a ten-year period (1973—1983–84).

Through this effort and the gathering of additional physical planning data,the comprehensive studies evolved. Numerous faculty-staff interviews and planning work sessions permitted the University to consider all aspects of its future development potential within both existing and expanded property boundaries.

The University administration determined that the Belknap Campus would be maintained as the principal campus of the University. The Health Sciences Center would begin an extensive program of expansion that would see the campus become a regional health care center serving the city, the county and the western section of Kentucky.

The Shelby Campus would be developed as a cluster institute campus that would include a community college, a center for continuing education and two academic and housing clusters. The School of Music,now housed on Shelby Campus, will be moved to Belknap Campus in an effort to unite all major academic programs of the University.

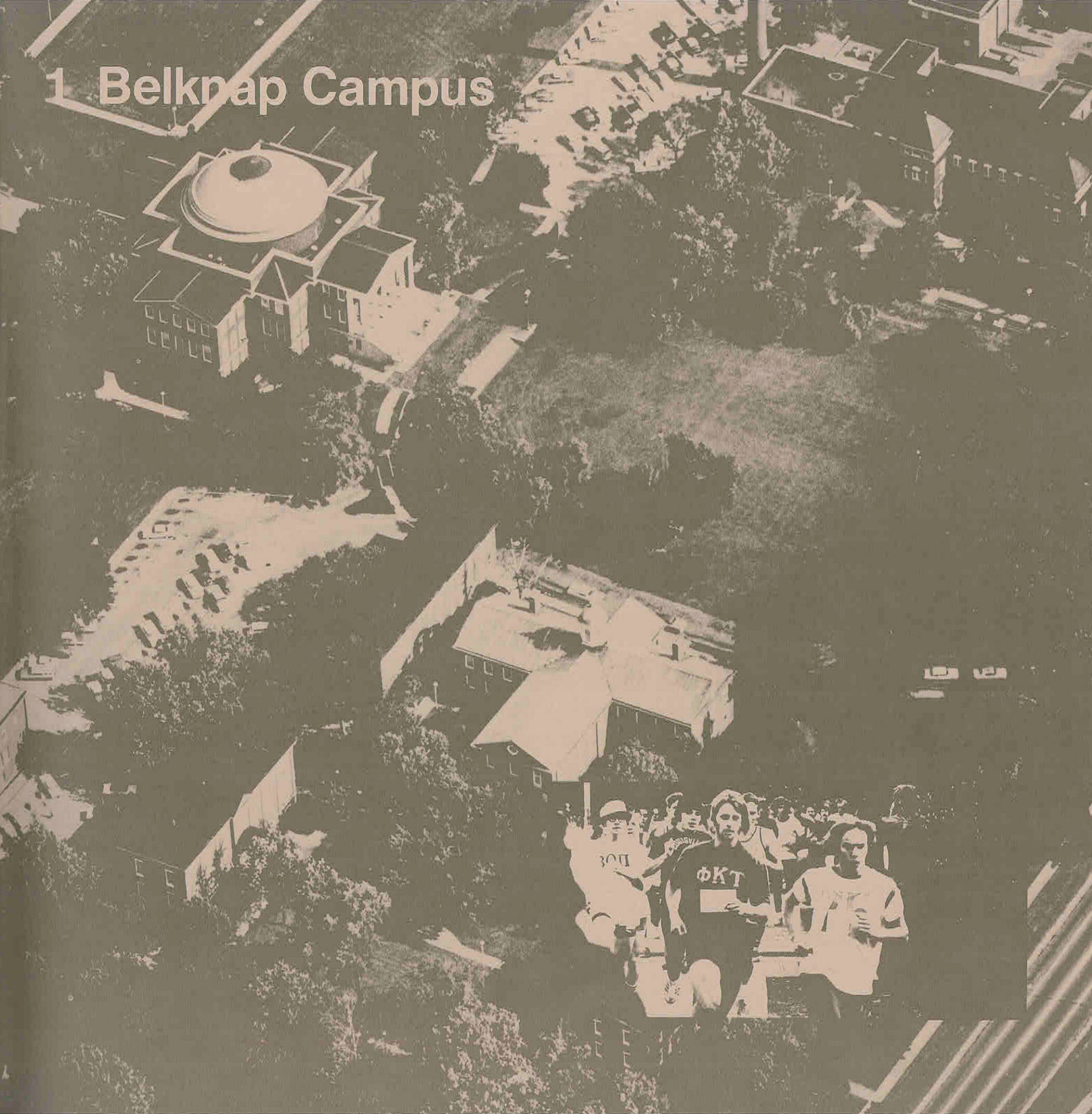
As a result of the predicted growth, it became clear that Belknap Campus, as the central campus of the University with a projected enrollment of 25,000 students, would need additional land. A program for orderly land acquisition was outlined.

Additional land was also needed for the Health Sciences Center Campus expansion. Shelby Campus, the largest acreage, needed no further land acquisition.

Simultaneous with the development of a plan for future growth has been an effort to define a system with which to monitor programs and priorities affecting physical development. Emphasis was placed on recognition of existing physical patterns and constraints in the initial phase of the study. The Long Range Plans describe an optimum arrangement of facilities, requiring major restructuring of existing traffic patterns and utility systems. The success of the Optimum Plans will be determined by the success in removal of constraints. The University has adopted a program of development that will require immediate action by government agencies of both the community and the state.

Finally, it will be necessary to monitor and evaluate programs and priorities at frequent intervals if the University is to develop in an orderly growth pattern. This will permit the University to continue to serve the community in an effective way.

1 Belknap Campus



The Planning Purpose

Master plans were undertaken in 1925 and 1936. Outgrowths of these include the Administration Building (1928), the Law School (1939), and buildings of the Speed Scientific School (1945). However, most buildings on the Belknap Campus were purchased or constructed without benefit of a plan as the University grew rapidly following World War II.

Not only has the University of Louisville grown rapidly (from 3,656 students in 1945 to 6,807 in 1955, and 9,550 in 1965)* but it has entered into the state system of higher education. Anticipating a further growth in enrollment with a projected decrease in tuition, and a legally mandated open door policy, the University undertook a demographic enrollment study. From this it was clear that enrollments (headcount) would easily grow to 20,000 at a university accommodating 9,057 in 1969. Furthermore, the Belknap Campus seemed hemmed in by railroads and main thoroughfares. It was imperative that a facilities plan be developed to guide future growth, not only on Belknap Campus, but Shelby Campus and the Health Sciences Center.

It was envisaged at the outset that the Comprehensive Facilities Development Plan for the University would be closely linked to the contemplated academic growth and future thrust. It was recognized that, as a public institution in an urban setting, the University wished to direct considerable attention to instruction, research and public service related to current problems of civilized life. The Development Plan depended upon preliminary plans provided by academic units, understanding that designs for specific buildings would require much more detailed academic planning.

Academic Planning

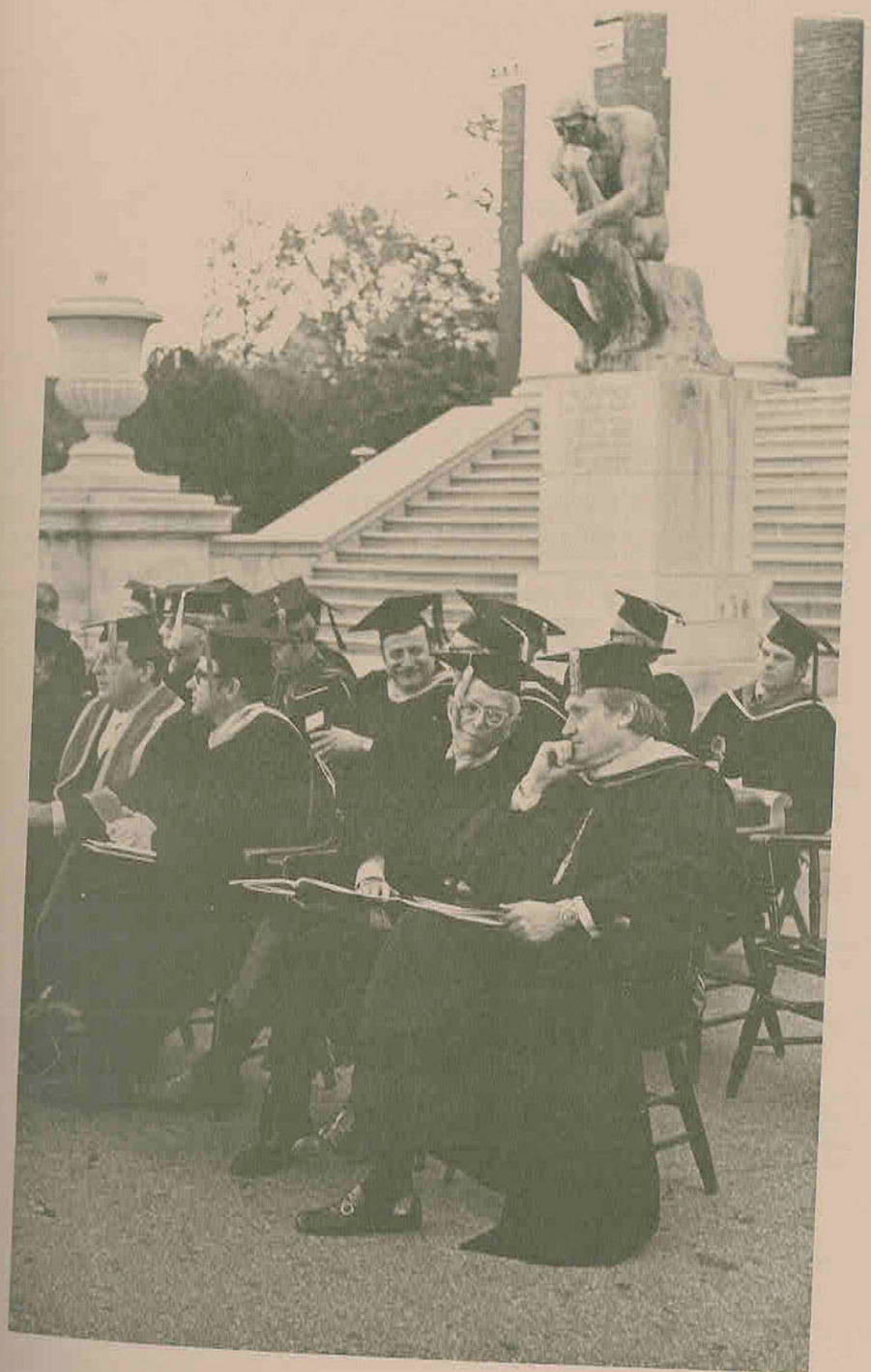
An enrollment projection, based upon a prediction of the number of college-eligible students that would be available in Jefferson County and Kentucky, was performed by Coates and Alluisi in 1972.** This report made three projections of enrollments for the University of Louisville based upon assumptions regarding the populations from which the University would draw, the holding power of the elementary and secondary school systems, and the drawing power of the University of Louisville. However, none of the projections considered the consequences of (a) an increased interest in college on the part of adults, (b) a decrease in tuition and (c) an open-door administration policy. Thus, while the liberal projections made were in excess of actual enrollments for 1972–73, the report underestimated the number of students for 1973–74 and 1974–75. Also, the degree of conservatism in the projections increased from one percent in 1973–74 to eight percent in 1974–75. It is very likely that this difference between projected and actual enrollments will continue to grow as tuition continues to decrease, as more and more adults take college work, and as more professions urge or require continuing education.

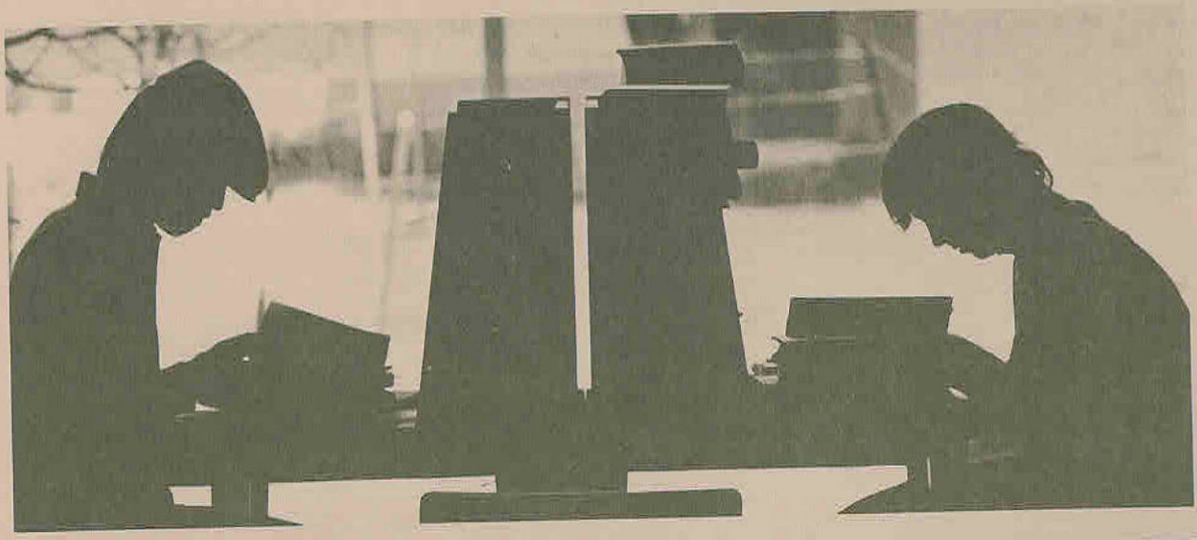
University deans were informed that enrollment in 1973 was exceeding liberal projections. In addition, deans were provided with student enrollment data for 1973–74, and asked to develop plans for their units for 1983–84. They projected a total F T E enrollment in 1983–84 of 18,085 and a total headcount of 23,870. Three figures represent an increase of 96% from 1973–74 to 1973–84 (121% for undergraduates and 48% for students in graduate and professional programs). These values, while somewhat larger than those projected, appear reasonable in view of recent enrollment growth. The preliminary projections of the individual deans and in the case of the College of Arts and Sciences, of the individual departments, were submitted to the architect-planner early in the planning. This information, plus statements concerning relationships among academic units, formed the basis for deciding upon possible building size, building clusters, and potential building sites.

Planning of academic programs and services has been a continuing process. More recent enrollment projections by the different academic units have not varied significantly from earlier estimates.

These figures are for the fall semesters.

** *1966–1971 Enrollments*
1972–1985 Projected Enrollments at the University of Louisville, (excluding Schools of Dentistry, Law and Medicine) Earl A. Alluisi Glynn D. Coates





Planning Guidelines and Constraints

Supplied with estimates of enrollment size for the different academic units, the architect-planner set about to develop a plan for facilities to accommodate the academic sector and various support services. To guide the planners and make some constraints explicit, the following information and instructions were provided by the University of Louisville:

- Enrollment should not be expected to exceed 25,000 students (headcount) at any time.
- Development of facilities for 25,000 students should be explored for (a) Belknap Campus if possible, (b) a combination of Belknap and Shelby Campuses and (c) Shelby Campus.
- A park-like campus of green spaces, tree-lined walks and quadrangles was to be maintained, with few buildings exceeding four stories. One or two high-rise buildings would be acceptable, but ground area coverage for buildings and parking facilities should not exceed 20 % coverage.
- The University should consider and acquire the property between I-65, (the North-South Expressway), and Fourth Street, and between Eastern Parkway and Avery. It should also acquire whatever property is available between the expressway and Brook Street north of Avery Street east of the Educational Park.
- The plan should not be constrained by existing barriers, but should envisage development that could occur if Third Street traffic were rerouted to Fourth Street, if Eastern Parkway were rerouted south of the Speed School, Brook Street were closed off, and the L and N Railroad were relocated to the east. Plans should be developed so that new facilities could be constructed and occupied before the above changes were made (and in case they were not made).
- It is likely that in most units the student/faculty-support staff ratio will decrease.
- A ratio of one parking space per 1.75 registered vehicles is reasonably acceptable. Approximately 50% of the students and 95% of faculty and staff are expected to register vehicles. Spaces should be provided in both surface and structured facilities.
- It is important and desirable for the University to assure that housing (University owned and operated, or private) be available on or off campus to students who desire it. It is anticipated that the proportion of students desiring it will remain the same or increase.
- The University contemplates a centrally located library facility with a hard cover collection which will reach 1.2 million volumes in 1984. No further increase in size is likely after that time.
- University policy calls for development of a Media/Communications Center to house administrative offices and production facilities for media and communication technology.
- The University's policy is to provide for men's and women's, academic athletic programs through the department of health, physical education, and recreation, an intramural athletics program, and an intercollegiate athletic program. While facility needs for these programs will have to be evaluated at a later date and priorities set via a consultative procedure, we believe University needs to be as follows:

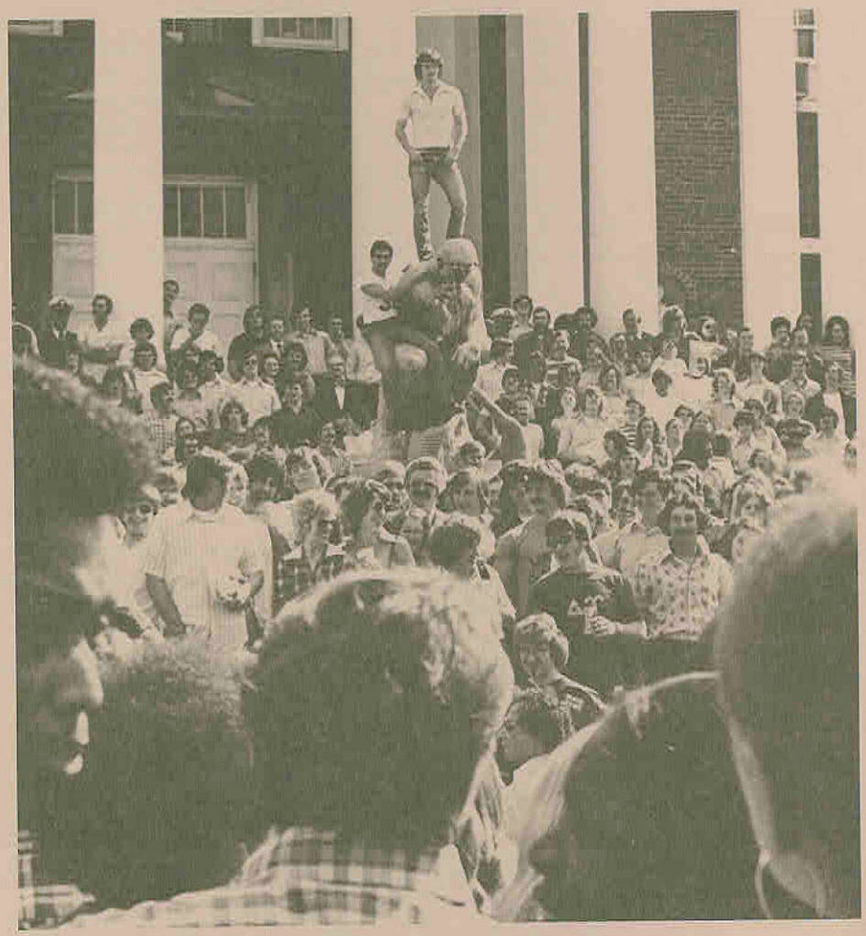
a. Academic and intramural programs immediately require additional outdoor space approximately the size of Parkway Field. Within 10 years the need is expected to quadruple.
b. An additional gymnasium for the academic program will be required within the next 10 years.

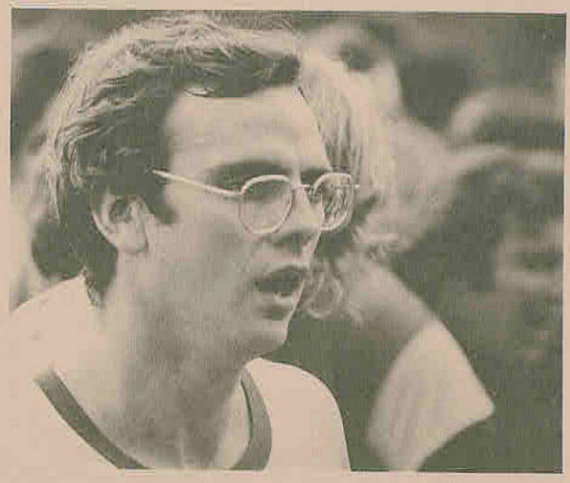
c. Varsity athletic programs for basketball and football are to continue to be housed, for the near future, at the Kentucky State Fairgrounds facilities, south of the campus.
d. Multipurpose outdoor recreation areas should be provided on campus to serve both housing and classroom areas.
e. A coed field house with adjacent practice fields for intercollegiate athletics is needed. The facility should provide indoor and outdoor space appropriate for the following intercollegiate sports: baseball, basketball, field hockey, football, softball, swimming and tennis.

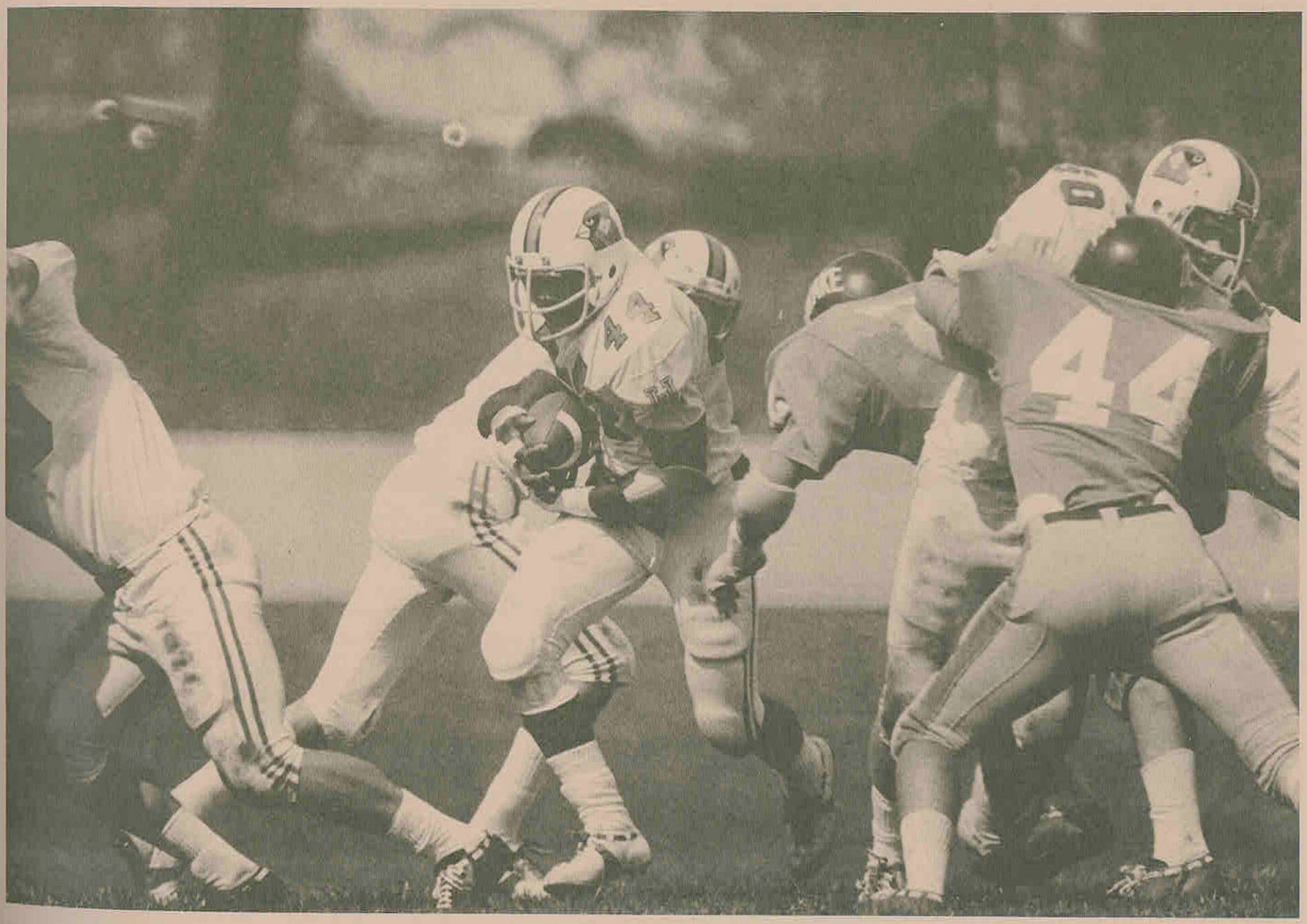
University administration believes that:

a. The University must provide a variety of services, facilities, and activities to encourage students to remain on campus throughout day and evening. This should include game rooms, music rooms, a book and gift store, a drug store, and a barber shop, as well as a snack bar and places for study, visiting and extra-curricular activities. Dormitories should provide game and TV rooms.
b. Locker spaces should be available in classroom buildings or in major classroom zones.
c. Informal activities such as those provided in the Red Barn are likely to quadruple in the next 10 years. Suitable facilities for a variety of informal events should be planned.

Construction phasing in the immediate future will be decided by a responsible policy setting procedure. Since the existing steam and chilled water plant is operating at maximum capacity, any new construction will require construction of a new plant. A School of Music building and a learning resources building now have highest priority. (Because it may be possible for music and other performing arts to share auditoria and parking, the University proposes to develop an architectural program for the Music and Arts Complex.) Priorities for all other construction will be determined by appropriately informed faculty and administrative bodies.







The Zones

The Long Range Plan is defined by five primary development zones linked about a major open space system that extends to all edges of the proposed expanded campus:

- Northwest Zone
- Northeast Zone
- Southwest Zone
- South Zone
- Southeast Zone

The Northwest Zone is generally defined as the area bounded on the north by Avery Street, Fourth Street on the west, the proposed western entrance boulevard, the Speed Museum and new classroom building on the south and the expanded entrance boulevard at First and Avery Streets on the east. The zone will be primarily developed as an Arts Complex relating to the existing Speed Museum, but will include some additional academic buildings on the west edge. Two parking structures are shown in the plan. A structure can be linked directly to the proposed Fine Arts Building and could be integrally linked to an auditorium facility for which a site has been reserved. The other parking structure could be connected to proposed academic structures in the Long Range Plan.

The Northeast Zone is defined by Avery Street on the north, Arthur Street on the east, the proposed Athletic Mall on the south and the north-south pedestrian way and expanded entrance boulevard.

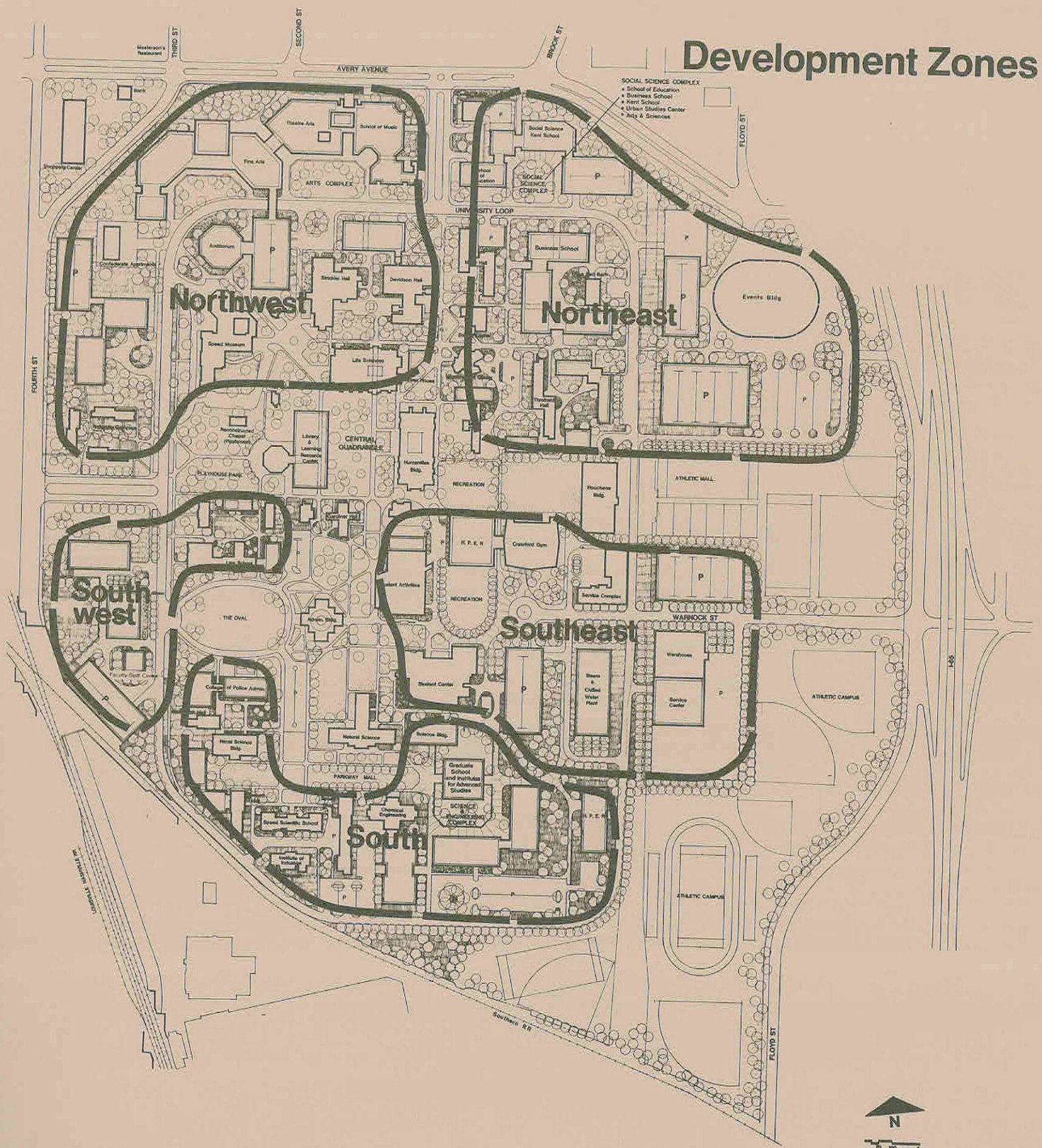
This zone will house the Social Sciences Complex in addition to existing dormitory and student activity center (The Red Barn). An events building may be constructed at some future date. A site for such a building has been reserved adjacent to the parking decks on the east side of the zone.

The Southwest Zone south of the proposed west entrance boulevard includes the present and proposed expansion of the Law School, a proposed academic building, administration office building, a faculty-staff center and a parking structure.

The South Zone encompasses the Speed Engineering Complex and will include the proposed Graduate Science and Engineering Complex extending into the Parkway Field area.

The Southeast Zone includes Crawford Gymnasium, the Library, University Center and the Service Complex. Additional facilities will include an addition to Crawford Gymnasium and acquisition and expansion of a warehouse facility. A new steam and chilled water plant will complete the Service Complex. Two additional parking structures are included to serve the Engineering Complex.

Development Zones



University of Louisville · Belknap Campus

Long Range Optimum Plan

Development Phases

The proposed expansion and development of Belknap Campus is delineated in three plans: the Immediate Plan, the Interim Plan and the Long Range Optimum Plan.

Previous progress reports have determined the need to acquire additional property surrounding the campus. The major portion of land acquisition will be to the east of the present campus. Some acquisition to the south is programmed in the Long Range Plan and three additional parcels are to be acquired to the west of the present campus boundaries.

The immediate needs of the University dictate acquisition of land for a steam and chilled water plant, necessary to any further physical expansion. Additional land is also needed to increase the parking capability. Eventually this land will be developed for academic needs. The Immediate Plan phase will include the initial buildings of three major academic clusters as well as the construction of a new library and learning resource center.

The Interim Plan phase will continue expansion of two of the three clusters and the expansion of the Library. Also included is the first segment of the University Loop or interior services route that is to be completed in the Long Range Plan phase.

The Long Range Optimum Plan delineates the future expansion of facilities beyond 1980. The sharp enrollment increases, currently experienced by the University, will require rapid development if the goal of accommodating a 25,000 headcount is to be achieved by 1985.

The Long Range Plan may serve only as a general framework for expansion for the next 25 years. It is important to adjust the plan as additional University programs and priorities are defined.

The Immediate Plan

Land acquisition is a primary consideration in the Immediate Plan for campus extension. Acquisition of 39.51 acres surrounding the present campus (west, south and east edges) will allow additional land for athletics, parking and the new steam and chilled water plant.

The total acreage of the campus will increase from 116.7 acres to approximately 156.2 acres if proposed acquisition is accomplished.

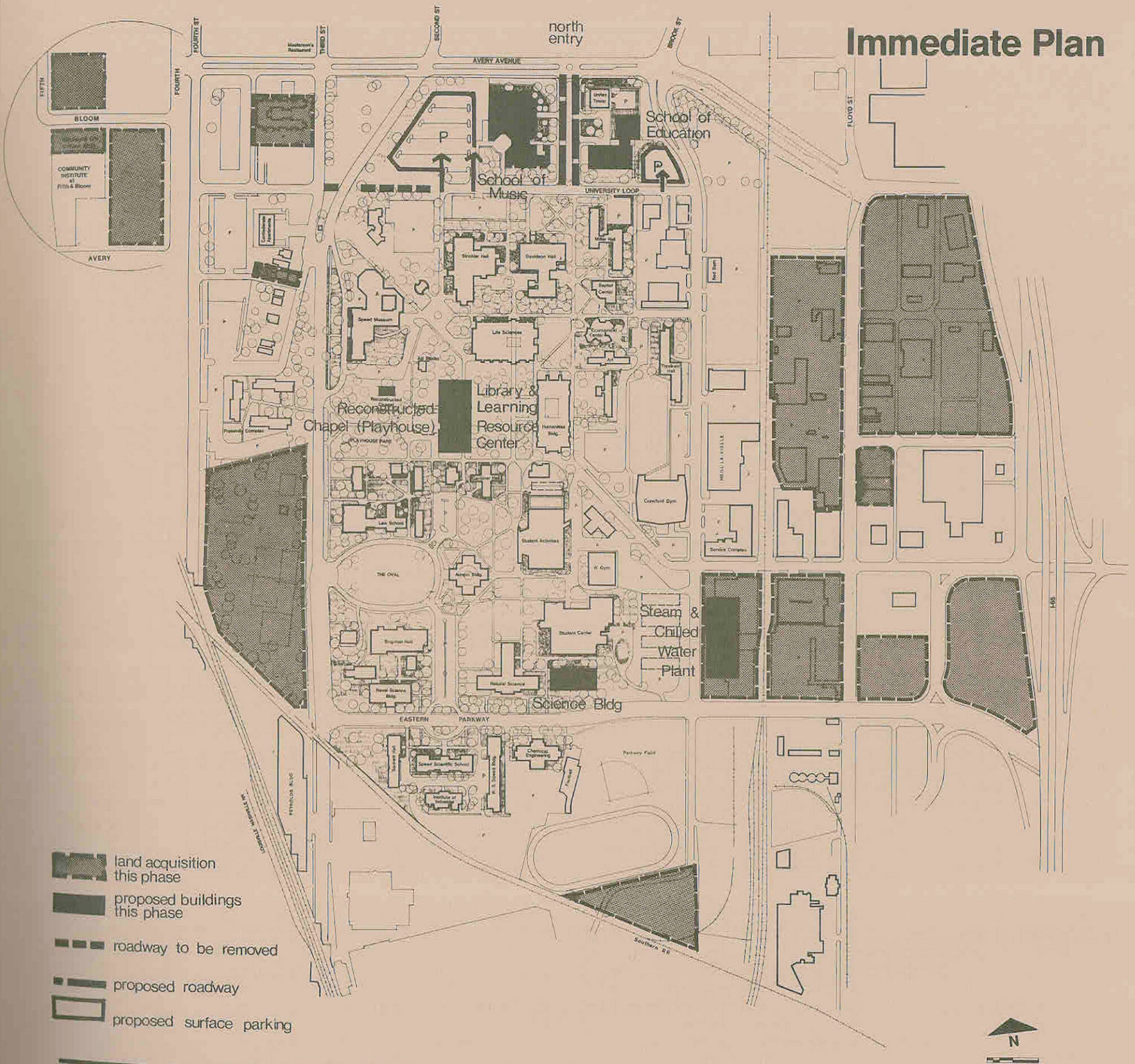
Construction totaling 576,000 gross square feet is proposed in four development zones as well as a new library- learning resources center on the west edge of the Central Quadrangle.

The north entrance from Avery will be expanded to a tree-lined entrance boulevard. The western portion of Brandeis Street will be removed to a point near the service road west of Strickler Hall. Landscaped surface parking lots will be developed adjacent to the proposed School of Music and the proposed School of Education.

Parking is an issue that will depend greatly on fuel availability, fuel costs, public transportation, and the University parking policy. The Immediate Plan indicates a total parking capacity of 4,908 spaces in surface lots—1,805 of these spaces would be provided on newly acquired land east of the present campus boundaries. Buildings on the newly acquired lands could remain. If they are removed, additional parking can be accommodated. Specific parking layouts will be required to determine the actual capacity of this property.

The 10.5-acre athletic area will be expanded to 19.52 acres.

Immediate Plan



University of Louisville · Belknap Campus

Immediate Plan

The Interim Plan

The Interim Plan calls for additional land acquisition of 6.70 acres, which includes recently developed commercial property along the north side of Warnock Street and a developed parcel southeast of the intersection of Floyd and Warnock Streets. This will increase the total campus acreage to 162.9 acres.

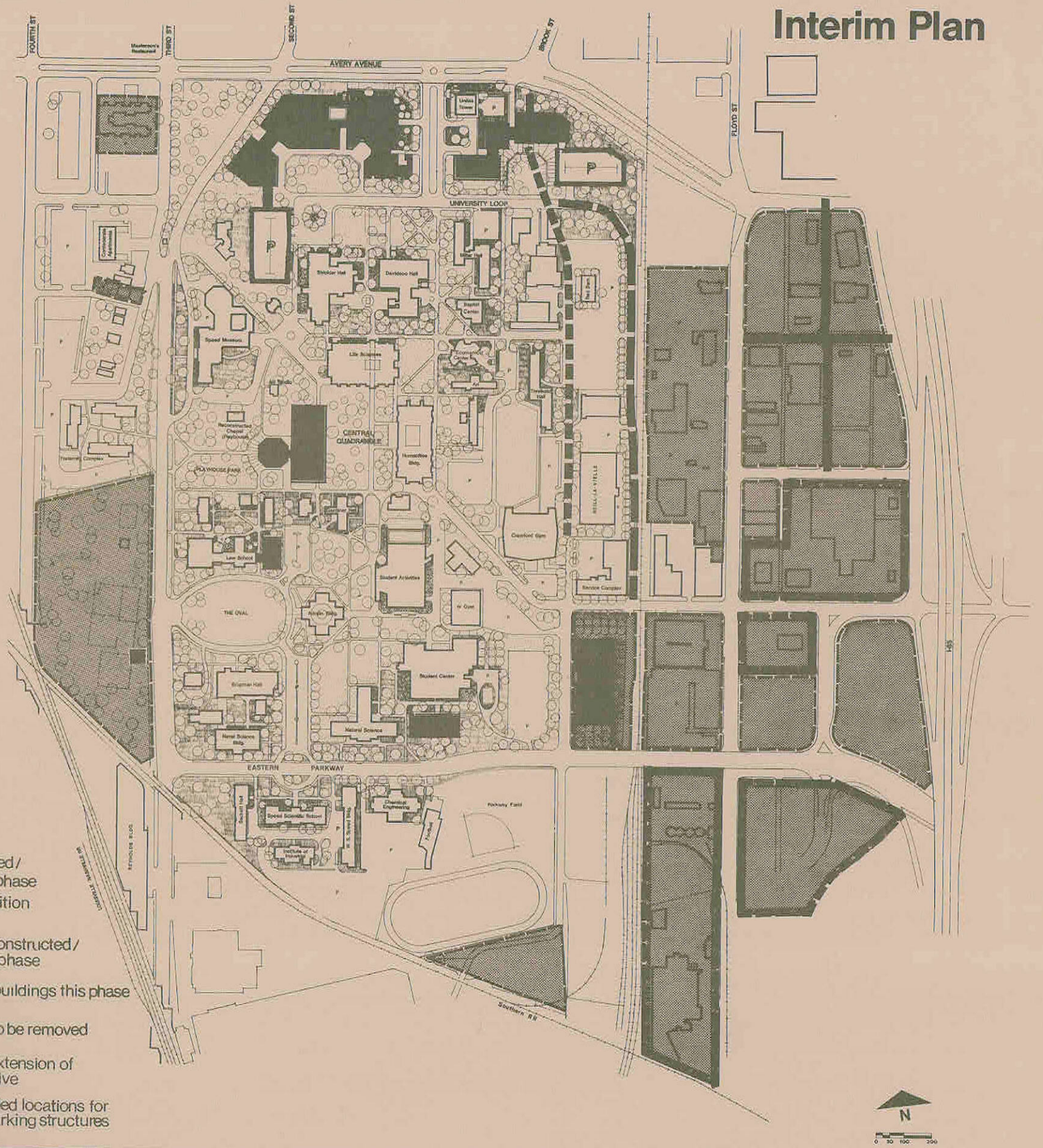
Additional buildings totalling 447,000 gross square feet are proposed in three development zones. Also included is an addition to the Library and Learning Resource Center constructed in the Immediate Plan Phase.

The Interim Plan also indicates the initial committment to a University Loop system by the elimination of thru-traffic (Brook Street) and construction of a portion of the "loop" extending Brandeis to the west edge of the present L & N Railroad right-of-way and running parallel to the right-of-way to Warnock Street.

Additional land acquisition in this phase will provide 750 additional parking spaces. Parking capacity will increase to 5,197 spaces assuming the use of newly acquired lands in the Immediate Plan phase.

Athletic space will remain at 19.5 acres until the Long Range Optimum Plan is developed. Then, approximately 12 acres will be added, bringing that total to 31.5 acres. As roadway rights-of-way are acquired, their areas can be added to athletic spaces. This will serve to amalgamate athletic acreage into a zone that will allow better land utilization.

Interim Plan



University of Louisville · Belknap Campus

Interim Plan

The Long Range Optimum Plan

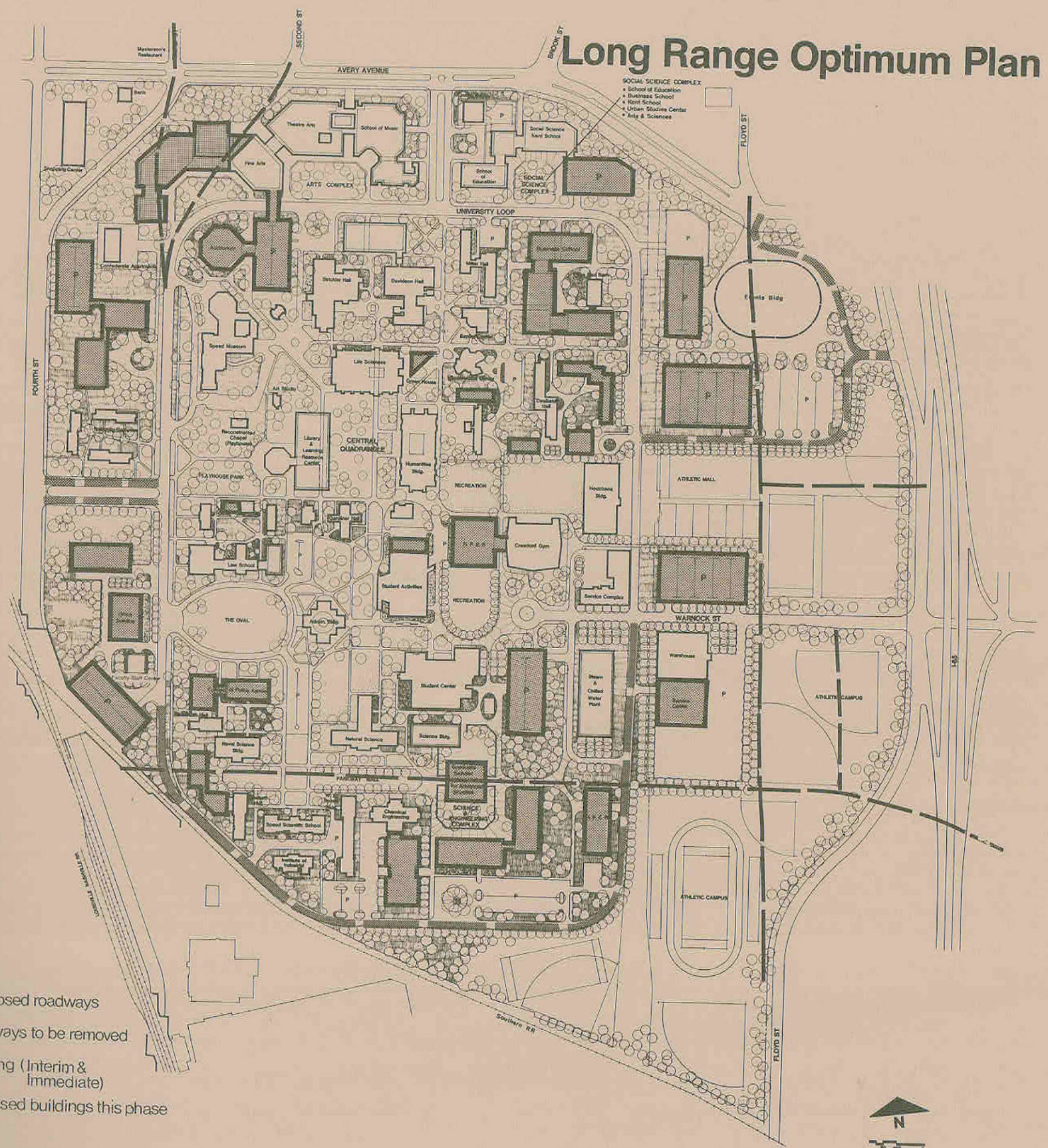
The Long Range Optimum Plan defines the physical expansion of Belknap Campus for the next 10 years and beyond. It is a diagram of existing and proposed facilities and movement systems and does not project exact quantities or configurations. As student enrollment increases, funding becomes available and academic goals are finalized, this plan will undergo re-evaluation. Facility priorities will have a major effect upon the implementation of the plan. The feasibility of removal and relocation of traffic constraints such as Third Street, the Second Street connector, Brook Street, Floyd Street, Eastern Parkway and the north-south line of the Louisville-Nashville Railroad will have profound effects upon land utilization, campus circulation and community traffic flow. Each of these proposed removals and relocations require thorough feasibility studies whose recommendations, scheduling and funding will affect the implementation of the Long Range Plan.

The acquisition of approximately 11 acres of land in this phase will increase the total campus acreage to approximately 174 acres.

The Long Range Plan phase will include the addition of 1,985,000 gross square feet of building space; 1,330,000 gsf will be academic space; 166,000 gsf will be housing; 143,000 gsf will be athletic spaces with the remainder devoted to administration and service areas. The athletic fields will be increased to approximately 37 acres.

Parking capacity will increase to 7,159 spaces of which 6,000 spaces will be in parking structures. The remaining spaces will be in surface lots throughout the campus.

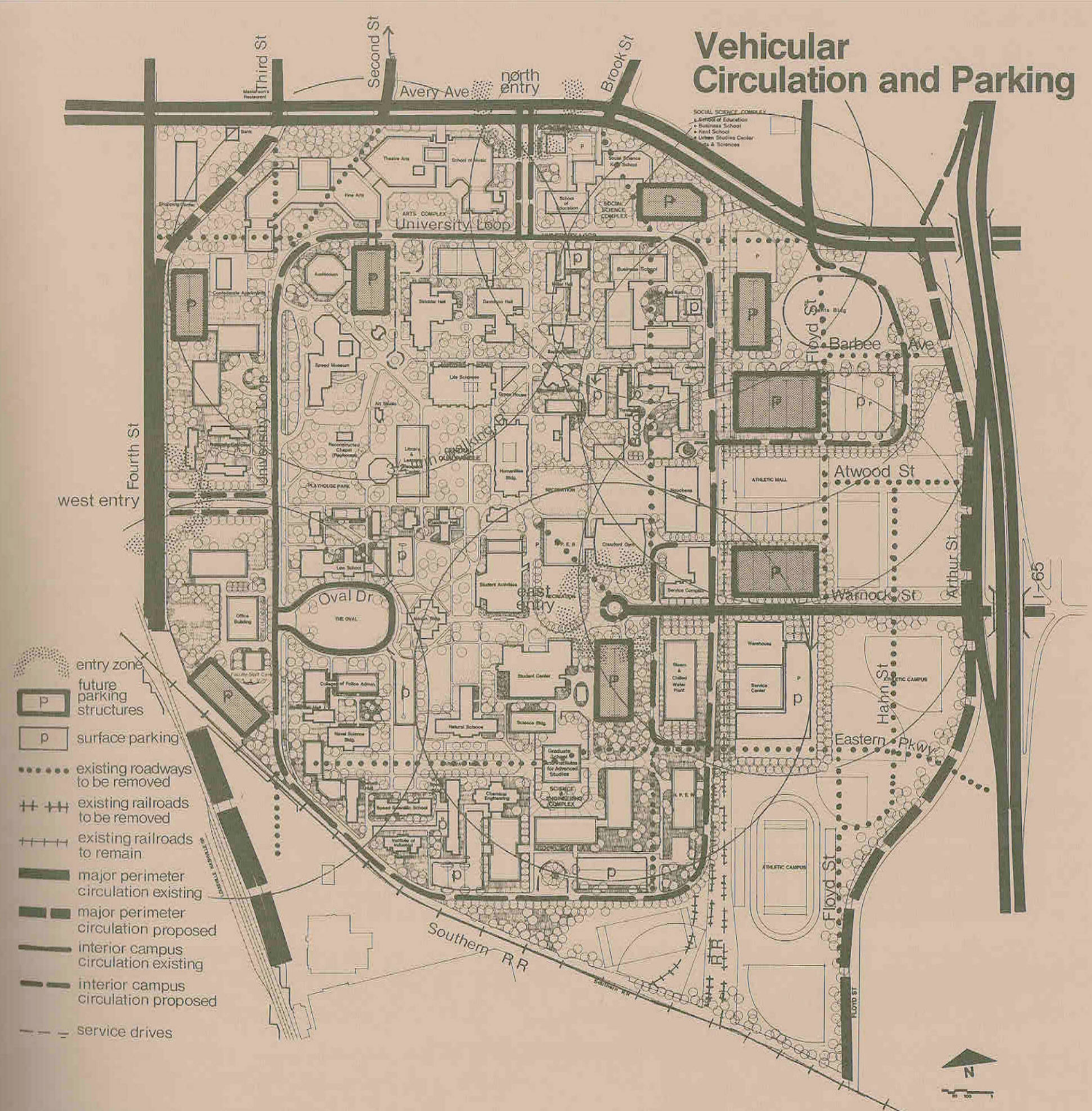
Long Range Optimum Plan



University of Louisville - Belknap Campus

Long Range Optimum Plan

Vehicular Circulation and Parking



University of Louisville · Belknap Campus

Long Range Optimum Plan

Traffic

The Belknap Campus is surrounded by major circulation routes. The plan proposes relocation of existing major traffic arteries in order to expand free of circulation constraints. Recently improved Avery Street will allow an eased flow of east-west traffic on the north edge of the campus. The relocation of Eastern Parkway to a point south of the Speed School Complex will allow development and expansion of the southern portion of the campus as well as removing existing sound and air pollution concentrations. Brook and Floyd Streets on the east side of the existing campus are to be removed. Arthur Street, which directly serves I–65, would be redesigned and rebuilt to accommodate these removals. The Second Street Connector and Third Street, within the limits of the proposed campus, are to be relocated to parallel existing Fourth Street, therefore permitting the consolidation of land in the northwestern portion of the campus.

Entry Points

Essential to the image and function of the campus plan are its entry zones. Each must be located to accommodate traffic demands related to community traffic patterns. The three proposed entry zones are well distributed allowing ingress and egress on three edges of the campus. The west entrance permits access from a major north-south traffic corridor and transit route. The north entrance boulevard expands an existing entrance allowing access to a major east-west corridor which extends eastward to the Interstate route. The east entrance will require the upgrading of an existing entry point by addition of a turn-around and a new parking structure. This entrance also allows entry to the campus from the elevated interstate expressway (I-65).

Parking

The eight parking structures shown on the plan are scheduled to contain approximately 6,000 cars within convenient walking distances of major academic and athletic facilities. Approximately 1,000 cars will be parked in surface lots throughout the campus. The lots are intended to be used by physically handicapped faculty and students, as well as administrators and visitors. The specific assignment for parking has not been identified nor has the construction priority been determined by the University. The escalation of vehicle and fuel costs will have an effect upon the present use of automobiles, as will fuel availability in the future. Public transportation improvements, campus express bus routes and vehicle registration policy and controls can have a significant effect on future parking needs. The present 3,800 car surface parking is adequate for the current enrollment, although distribution of parking is not satisfactory. If the present parking ratio and policy of surface parking continues unchanged, the University will be required to provide approximately 52 acres of campus land for surface parking.

Service Loop

The proposed interior campus circulation drive or University Loop connects the three major campus entrances. It acts as the major campus service route and vehicular access to the eight parking structures that ring the campus. The University Loop permits campus service and security vehicles to cross the main body of the campus on "sidewalk-streets" (constructed to serve vehicle access requirements). Many of these sidewalk streets permit direct access to underground utility corridors and tunnels. The University Loop will also provide for maintenance vehicle access to all parts of the campus.

In addition the "loop" system will enable the University to control the influx of vehicles for special athletic functions and academic events. By providing on-campus stacking lanes for vehicles moving to and from parking areas, traffic flow on perimeter community routes will not be adversely affected.

Security

The combination of three well spaced entry points and an interior "loop" system will define a security pattern that will discourage unwarranted vehicular traffic flow through the campus, while reducing high speed vehicular-pedestrian conflicts. The existing "Oval" drive to the Administration Building will be connected to the University Loop system as will the drive to Speed Museum.

The Walkways

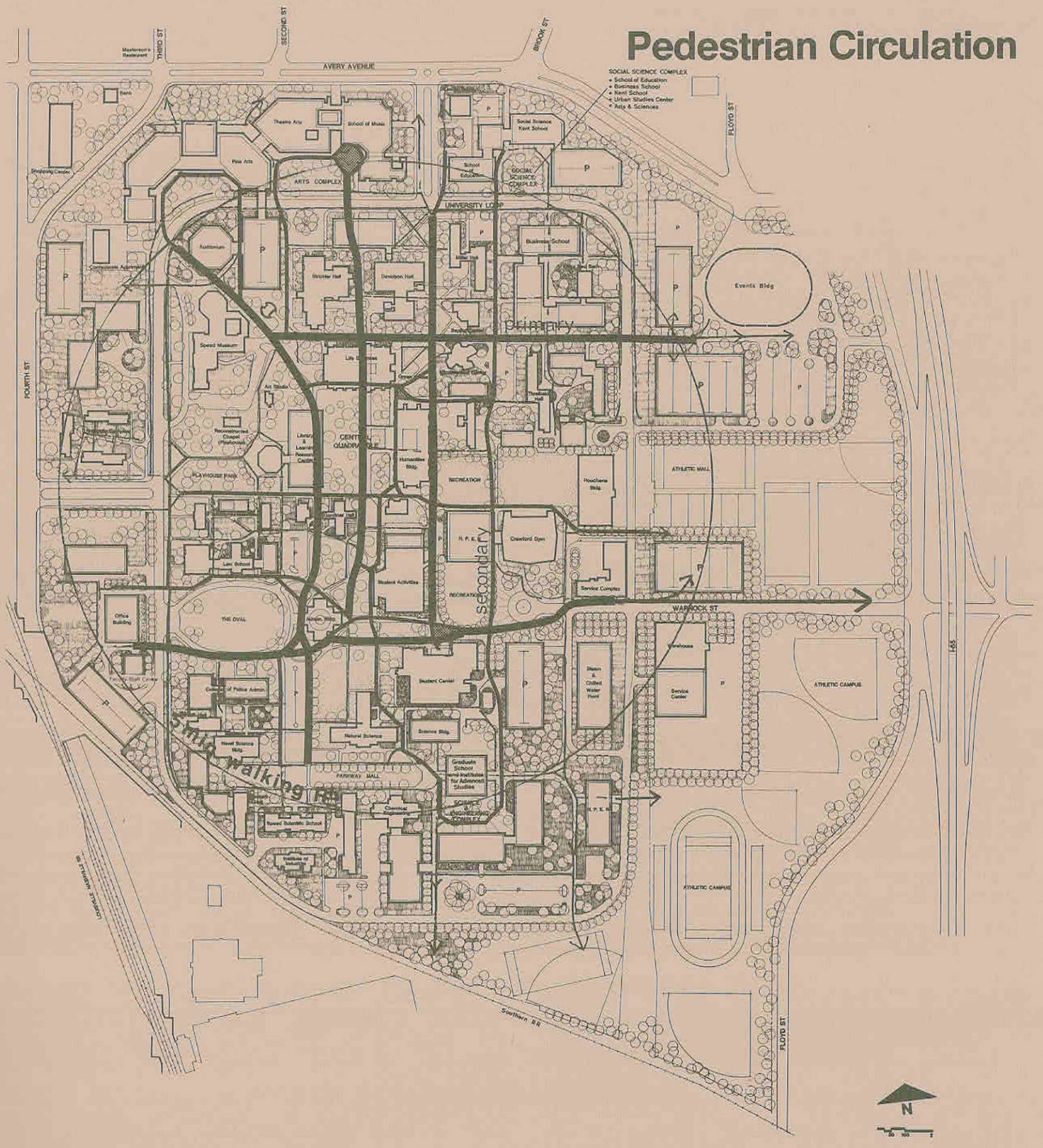
The walkways are essentially extensions of existing patterns of pedestrian movement and reflect the grid-like north-south and east-west pattern of the original street system, including a diagonal movement pattern from the northwest corner of the campus to the Central Quadrangle. Parallel to many of the previous streets are major academic pedestrian ways that, throughout the growth of the campus, have served to connect open spaces and quadranges in an effective way. The recent completion of the Central Quadrangle (a park-like space), linked through the Life Sciences Building to the more urban building court space of the new classroom buildings, has further enhanced and expanded this system. This pattern, when extended to the proposed Arts Complex, will permit the development of a "Campus Green" and pedestrian plaza. The parallel north-south walk system (previously First Street) is defined at one end by the new entry zone from Avery Street and at the other end by the Student Center Building.

The recently improved east-west walkway system north of the Life Sciences Building (replacing Barbee Street), when extended, will connect public oriented facilities; Speed Museum to the west, and a proposed events building to the east.

All existing walk systems, when extended to the University Loop, will improve circulation between building clusters and perimeter parking.

Some of the walkways will function as pedestrian ways, and as limited access streets for University service and security vehicles.

Pedestrian Circulation



University of Louisville · Belknap Campus

Long Range Optimum Plan

Open Space Concept

One of the most dominant visual qualities of Belknap Campus is the open space and mature landscape matrix of the original southwestern portion of the campus (generally defined by the diagonal Shipp Street edge west to Third Street and south to Eastern Parkway). It is essential to the aesthetic vitality of the campus that this area be preserved and enhanced through proper maintenance of plant materials and lawns and the selective and sensitive addition of "in-fill" structures. (Additions to existing structures.)

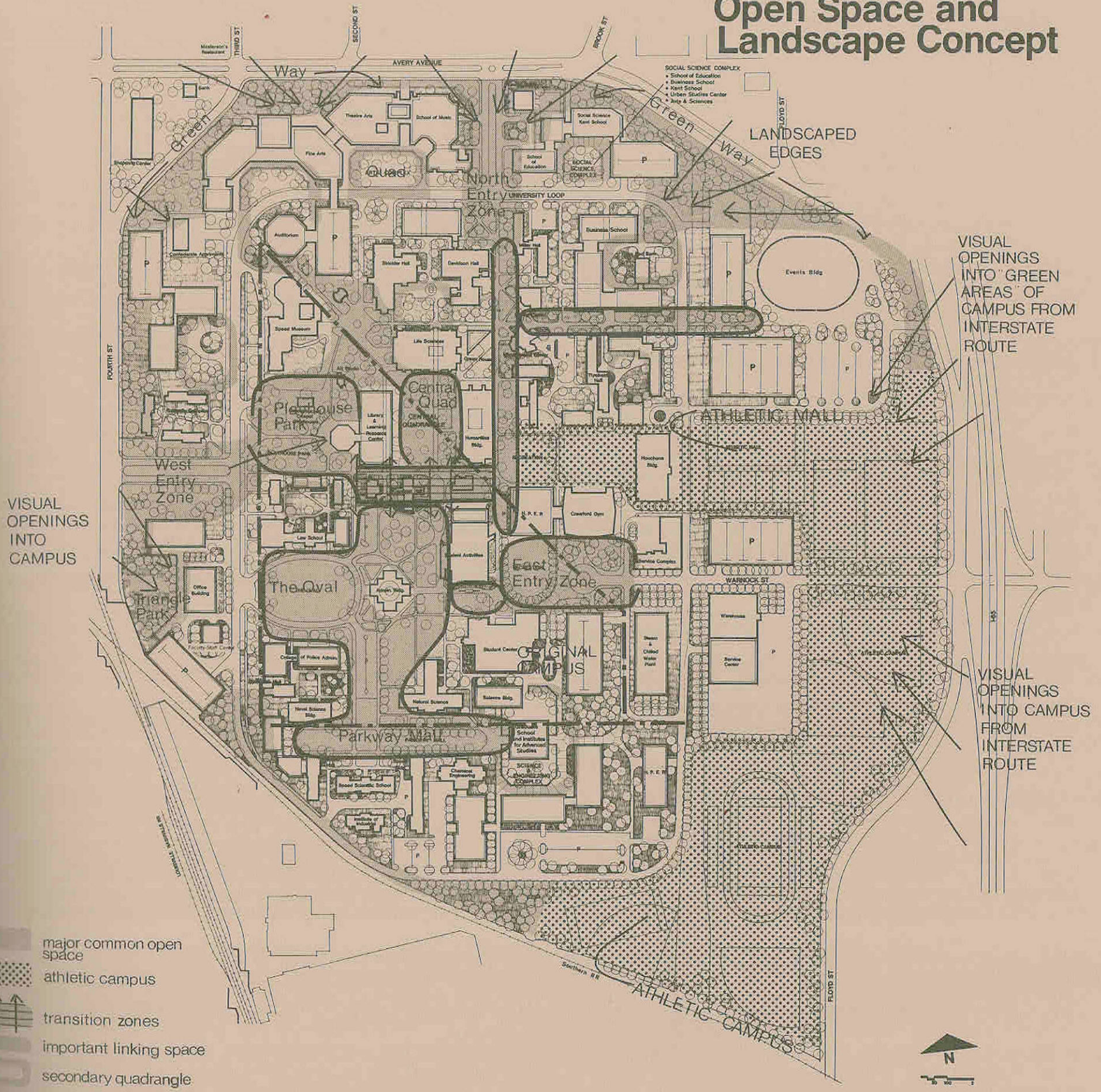
The preservation of this area will serve to develop a continuity of open space to new extensions (south to the "Parkway Mall" and east to the Athletic Mall). The "core" of open space generally centers on the Administration Building and the Oval and extends to include major entry zones, park-like quadrangles and athletic areas. Also important is the need to establish campus identity at major entry zones and to provide a variety of open spaces throughout the campus.

Major academic expansion on the north edge of the campus will require significant open spaces for pedestrian circulation—nodes for activities and exchange. Major open spaces defined by the Arts Complex are potentially valuable areas for outdoor exhibits, theatrical presentations, musical programs, art fairs and the spontaneous interaction of students. In addition, those areas will present important opportunities for community use and involvement.

The plan responds to the "community edge" in a positive way by establishing visual releases into the central campus, setbacks, and landscaped street edges for easy identification of entrances necessary to public access for theatrical, musical and museum events.

The proposed Events Building is situated to be identifiable from adjacent traffic routes. It is the focal point of a major open space—the athletic zone of the expanded campus. The present athletic area, 10.5 acres, is inadequate and will be expanded to 37.0 acres (a minimal standard for the projected enrollment.)

Open Space and Landscape Concept



University of Louisville · Belknap Campus

Long Range Optimum Plan

Utilities

existing

General

The existing campus is served with water, sanitary sewers, storm sewers, gas, electricity, television and telephone systems. Heating and cooling systems vary. Some systems get heating and cooling from the central plant, some have individual heating and/or cooling systems, and some have no cooling systems at all.

Water

The water system supplying the campus is owned and operated by the Louisville Water Company, a city-owned utility. Adequate supply and pressure is normally maintained. Pressure at street level in this area normally exceeds 70 pounds per square inch and frequently runs as much as 85 pounds per square inch.

The piping system serving the campus is a loop system of cast iron water mains varying in size from 4 inches to 48 inches in diameter. Pressure is normally sufficient to supply both the domestic and fire protection requirements of the campus. Certain high rise facilities may require the use of pressure pumps for both domestic and fire protection systems.

The present maximum domestic water demand for the campus is estimated at 1,400 gallons per minute with a daily consumption of 232,000 gallons. The water supply for the campus is metered in 35 locations.

Sewers

The sewer system is owned and operated by the Metropolitan Sewer District. The network of sewers carries the sanitary waste to a sewage treatment plant and then to the Ohio River. The metropolitan sewer system serving the campus is a conglomerate of systems, storm, sanitary, and combination, all of which have undergone continuous changes and up dating in recent years.

The private distribution system owned and operated by the University is also a conglomerate of systems. The older system is a combination of storm and sanitary sewers. Facilities built within the past 7 years are serviced by separate storm and sanitary sewers.

proposed

Water

Water pressure and supply mains appear to be adequate for the present and expanded campus. The location of mains, pressure, metering systems desired and the adequacy of the fire protection system should be verified before the initiation of expansion programs.

The campus expansion program and some of the proposed facilities encompass areas containing both city and University-owned water mains. It will be necessary for the University to grant special utility easements for some of these mains and to relocate others.

Sewers

The sewer system is continually being improved under the direction of the Metropolitan Sewer District and Urban Renewal Agency. It should be adequate to provide for the present and the expanded campus. Some planned facilities include areas containing the largest sewers in the district. Their location should be verified before proceeding with any expansion program.

The Metropolitan Sewer District will require the separation of storm and sanitary sewers. The costs to separate sewers on University property would be paid by the University. Up dating and separation of public sewers in urban renewal areas adjacent to the campus is in process.

Utilities

existing

Gas

Present gas supply and mains seem adequate for the present campus. Additional and adequate gas mains are located on and adjoining the campus.

The future availability of natural gas and additional natural gas is not known at this time. It seems probable that the use of gas will be curtailed in the future.

The University should transfer (under present regulations) gas loads from abandoned facilities and facilities with individual systems that are no longer required. These gas loads should be transferred for use in the central plant.

There will be some cost for utilities, such as water, gas, sewers, and electricity, either for relocation or service to a planned facility. These utility costs would be minor when compared to the overall program.

proposed

Gas

Natural gas is supplied by the Louisville Gas and Electric Company, a private corporation under the control of the Public Service Commission. Gas is received from transmission lines of the Texas Gas Transmission Corporation.

The pressure in these underground distribution mains ranges from 4 ounces to 100 pounds. The distribution lines bounding the campus range in size from 4 inches to 20 inches, all at various pressures. Since the Louisville Gas and Electric Company has a continuous maintenance program, the mains should have an indefinite life span.

Although there is some question about the future availability of natural gas, it is assumed that there will be an adequate supply to provide for the existing campus.

The Louisville Gas and Electric Company has stated that the amount of natural gas will be reduced during the 1975–76 winter. Further reductions will occur in the future.

Additional gas service is not available at this time. There seems to be little prospect that additional gas will be made available in the future. There are existing regulations permitting a customer to transfer gas loads from one location to another. This may be considered by the University prior to the initiation of their expansion program.

The expansion program and some of the proposed land acquisitions encompass areas containing both Louisville Gas and Electric Company mains and University-owned gas mains. In order to properly follow the campus expansion program, it will be necessary for the University to grant special utility easements for some of these mains and to relocate others.

Utilities

existing

Electrical Systems

Electricity is provided by the Louisville Gas and Electric Company and is regulated by the Kentucky Public Service Commission. Primary electric supply to Belknap Campus is a 13,800-volt, 3-wire, ungrounded system.

There is ample power available to serve the present needs of the campus, but with the proposed expansion, increased service will have to be provided.

At present the campus is served by an overhead pole line located on Third Street. High voltage cables extend from this pole line, in underground duct banks, to a metering station in the School of Law. From there, underground circuits are extended to distribution points throughout the campus.

Estimated Electrical Demands

During the Immediate Expansion Program, the electrical service demand will increase to 8,000 KW. The distribution system should be capable of a maximum demand of 11,000 KW.

During the Interim Expansion Program, the electrical service demand will increase to 10,200 KW. The distribution system should be capable of a maximum demand of 14,400 KW.

During the Long Range Expansion Program, the electrical service demand will increase to 17,200 KW. The distribution system should be capable of a maximum demand of 23,500 KW.

Incoming service is limited to 10,000 KW per circuit. The distribution system will require two (2) incoming circuits through the Interim Expansion Program and three (3) incoming circuits for the Long Range Expansion Program. All metering should be at one location so that meters may be totalized.

Incoming service includes an emergency circuit which may be used in the event of a power failure in the normal source. Only one emergency circuit is necessary for the three normal circuits. Switching may be automatic or manual.

proposed

Electrical Systems

Additional electrical service is required for the expanded campus. Service should be metered at one location. An undergound cable duct distribution system with capacity to serve electrical, security, television, and communication requirements of existing and proposed facilities should be installed.

Under the Long Range Program, a primary electrical distribution system should be provided to serve all buildings on the campus. Distribution system should have a 25% demand increase beyond planned development.

During the Immediate and Interim Expansion Programs, existing buildings with separate service entrances which are scheduled to be maintained should be connected to the primary electrical distribution system. Existing buildings with separate services and scheduled for demolition should remain with separate service unless the service interferes with campus development.

Dual primary circuits should be extended to each main transformer location. A primary selection switch arrangement should be provided to protect against cable failure. The primary circuit arrangement may either be radial or loop feed, depending on existing cable insulation.

New structures should be designed with a double-ended substation arrangement with tie-switches to protect against transformer failure. Oil-filled, forced air cooled transformers for overload capacity should be provided.

Where building design and occupancy requires, engine-driven generators should be provided for alarm systems, exit lighting and essential loads (elevators, pumps, refrigeration, etc). Elsewhere, a battery-powered system should be provided to serve alarm systems and exit lighting as required by the Life Safety Code. An automatic transfer arrangement should be provided in buildings served by double-ended substations and where engine-driven generators are provided.

Utilities

existing

Telephone

Telephone service is provided by the South Central Bell Telephone Company. Telephone distribution on the campus is underground. Some of the distribution lines are in cable ducts and others are direct burial cables. The location of some of these cables are often cut or dug up during campus improvement programs, causing service outage to some or possibly all campus facilities. Since routing of some of these cables is unknown, restoration of service is made difficult.

Television

Closed-circuit television is available on the campus. Space should be provided in the underground duct system for cable distribution to all buildings when requirements are known.

proposed

Telephone

Abandon all direct burial cables and install new cables in underground cable ducts.

Television

The University long-range program envisions expanded cable service to all buildings and to all instructional rooms. This service will provide terminals accepting color television studios in Strickler Hall. Plans also predict expansion of the instructional television system to interconnect to other networks such as Kentucky Educational Television, the Indiana Higher Education Telecommunications System, etc. This system will also have compatability with local cable television systems. For fast, reliable and discreet exchange of digital information, a fixed service return link capability will be required.

Fuels

The present plant can burn natural gas or fuel oil. Within limitations, natural gas is available from the Louisville Gas and Electric distribution system. Oil is available through delivery by truck. When the new plant is constructed, coal can be delivered by rail or truck. Any power (steam and chilled water) plant should be designed to burn natural gas, low sulphur coal, high sulphur coal and number 2 oil or number 6 oil.

Emission Controls

The Jefferson County Air Pollution Control District's regulations limit the amount of particulates and sulphur dioxide which can be omitted. The present particulate regulation can be met by installation of mechanical dust collectors,and the sulphur dioxide regulation can be met by burning low sulphur coal. Scrubbers to remove sulphur dioxide from the fuel gasses when burning high sulphur coal have not been developed for this size installation to the point where they can be considered practical.

Utilities

existing

The Steam and Chilled Water Plant

Some campus facilities are heated and cooled by individual building systems supplied from the Central Steam and Chilled Water Plant. Other facilities have no provisions for cooling. Those facilities served by the central plant are connected to the plant by a network of piping most of which is located in underground distribution tunnels. A small amount of the distribution piping is buried underground.

Fifty-eight% of the campus is served by the central steam plant and approximately 38% of the campus is served by the chilled water plant.

The steam/heating plant contains two boilers–one old boiler with a maximum capacity of 35,000 pounds of steam per hour and has not sufficient capacity to provide for the requirements of the present campus except during mild weather. The other boiler is relatively new and has a capacity of 56,000 pounds of steam per hour. Under severe conditions this boiler would be loaded to capacity to provide for the facilities now served from the central plant.

The chilled water/cooling plant contains three refrigeration machines with a total capacity of 1,950 tons of refrigeration. This plant has also reached its capacity. Of the three refrigeration machines, a 600-ton unit is old but the other 600-ton unit and the 750-ton unit are new.

Some of the existing steam and chilled water equipment is comparatively new and should be moved to the new plant. This equipment includes a 56,000-pound-per-hour boiler, a 600-ton and a 750-ton centrifugal refrigeration machine.

The campus contains approximately 1,938,000 g s f of floor area. The master plan provides for an approximate total of 4,476,000 g s f The plan as presented accounts for a reduction in present facilities of 281,000 g s f and an addition of approximately 2,819,000 g s f of floor area.

proposed

The Steam and Chilled Water Plant

It is evident that the University must construct an adequate power plant complete with proper distribution system to provide for the present and the expanded campus heating and cooling requirements.

The plant could be constructed in two separate phases that coincide with the planned facilities expansion program.

The initial plant should provide for the majority of existing facilities and the new facilities included under the Immediate and Interim Plans. Space should be available for additions to both the heating and cooling portions of the plant to provide for the requirements of the Optimum Plan.

It is recommended that the plant have adequate open space and equipment arrangement to conduct class tours and study by engineering students and other interested persons.

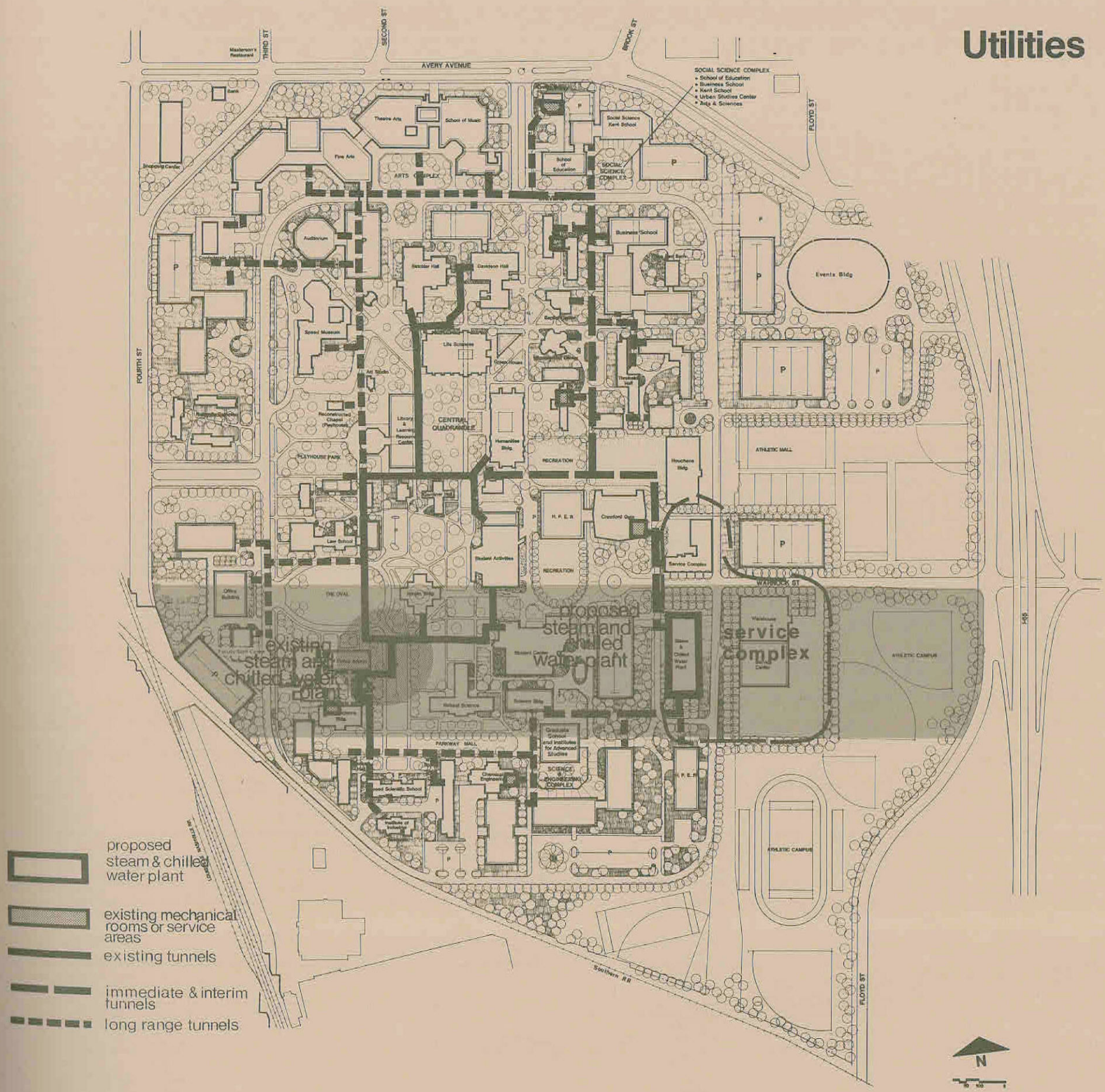
Heating and cooling distribution should consist of a network of piping systems eventually forming complete loops around the campus. These piping systems should be located in underground tunnels of sufficient size to allow proper maintenance. Existing buried piping should be replaced. Facilities should be served from the tunnel systems. The power plant will require a space of 200 feet by 400 feet. In addition, 15,000 square feet will be required for emergency fuel storage. These areas could vary somewhat with selection and arrangement of equipment.

The normal plant fuel storage, should be for a 21-day minimum supply of coal and oil for use in case normal deliveries are interrupted.

A dust collection system (required by present regulations) should be provided and space should be left for the future installation of scrubbers, should it become practical to allow the use of lower cost high sulphur coal.

Complete ash and coal handling equipment should be provided. These facilities should provide for both truck and rail access.

Utilities



University of Louisville · Belknap Campus

Long Range Optimum Plan

Statistical Summary

Academic

Existing	1,532,000 gsf
To Be Removed	392,600 gsf
Balance	1,139,394 gsf
Total Required	3,420,000 gsf (190 gsf x FTE)
Proposed	2,280,000 gsf
Total	3,420,000 gsf

Housing

Existing	419,868 gsf/1,100 beds
Proposed	166,000 gsf/ 830 beds
Total	585,868 gsf/1,930 beds

Parking

Existing	3,800 spaces
Proposed	7,000 spaces

Athletic Acreage

Existing	10.5 acres
Proposed Total	37.0 acres

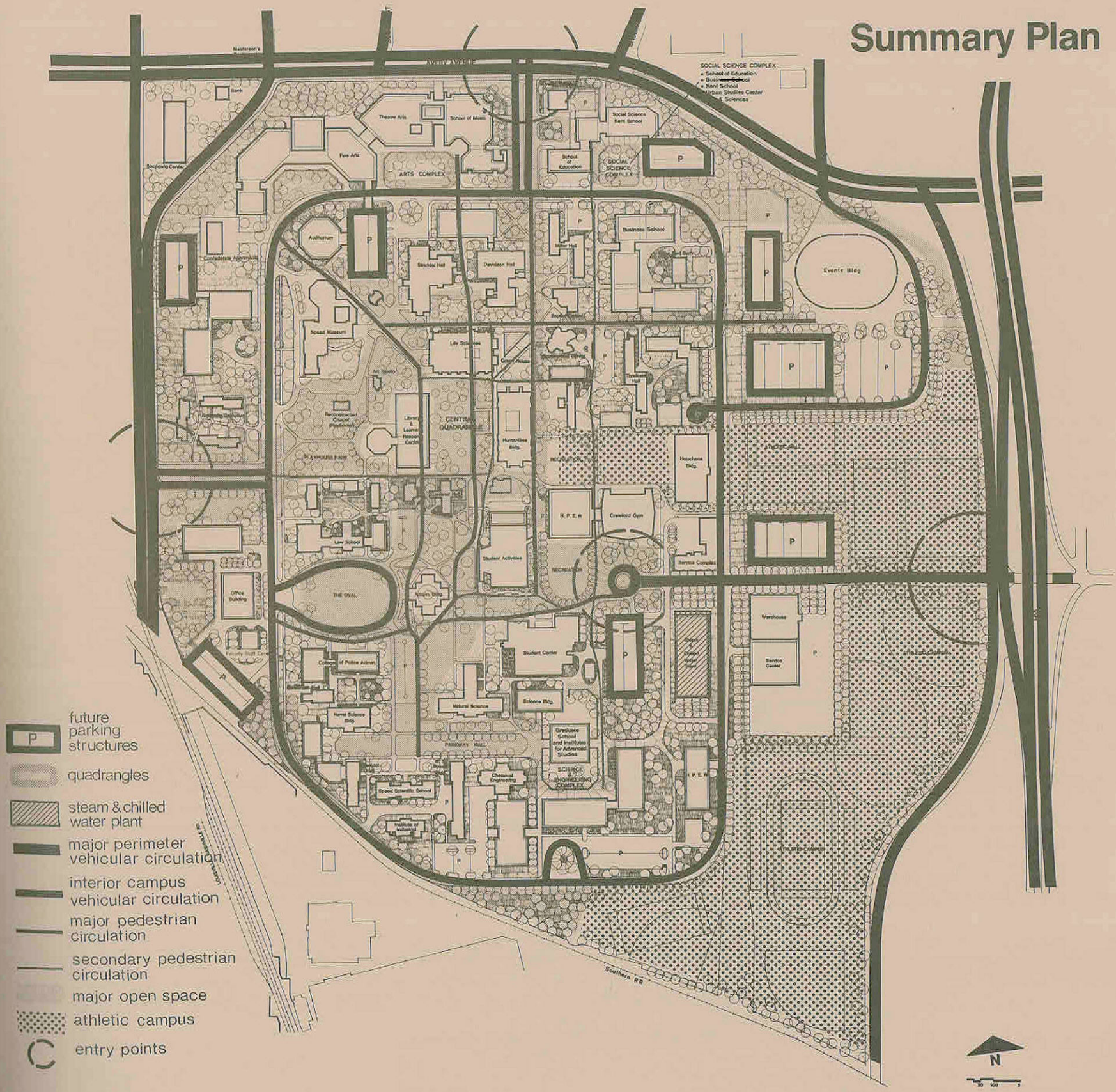
Athletic Education Spaces

Existing	75,920 gsf
To Be Removed	16,642 gsf
Balance	58,178 gsf
Proposed	82,000 gsf
Total	140,278 gsf

Campus Acreage

Existing	116.7 acres
Proposed	57.3 acres
Total	174.0 acres

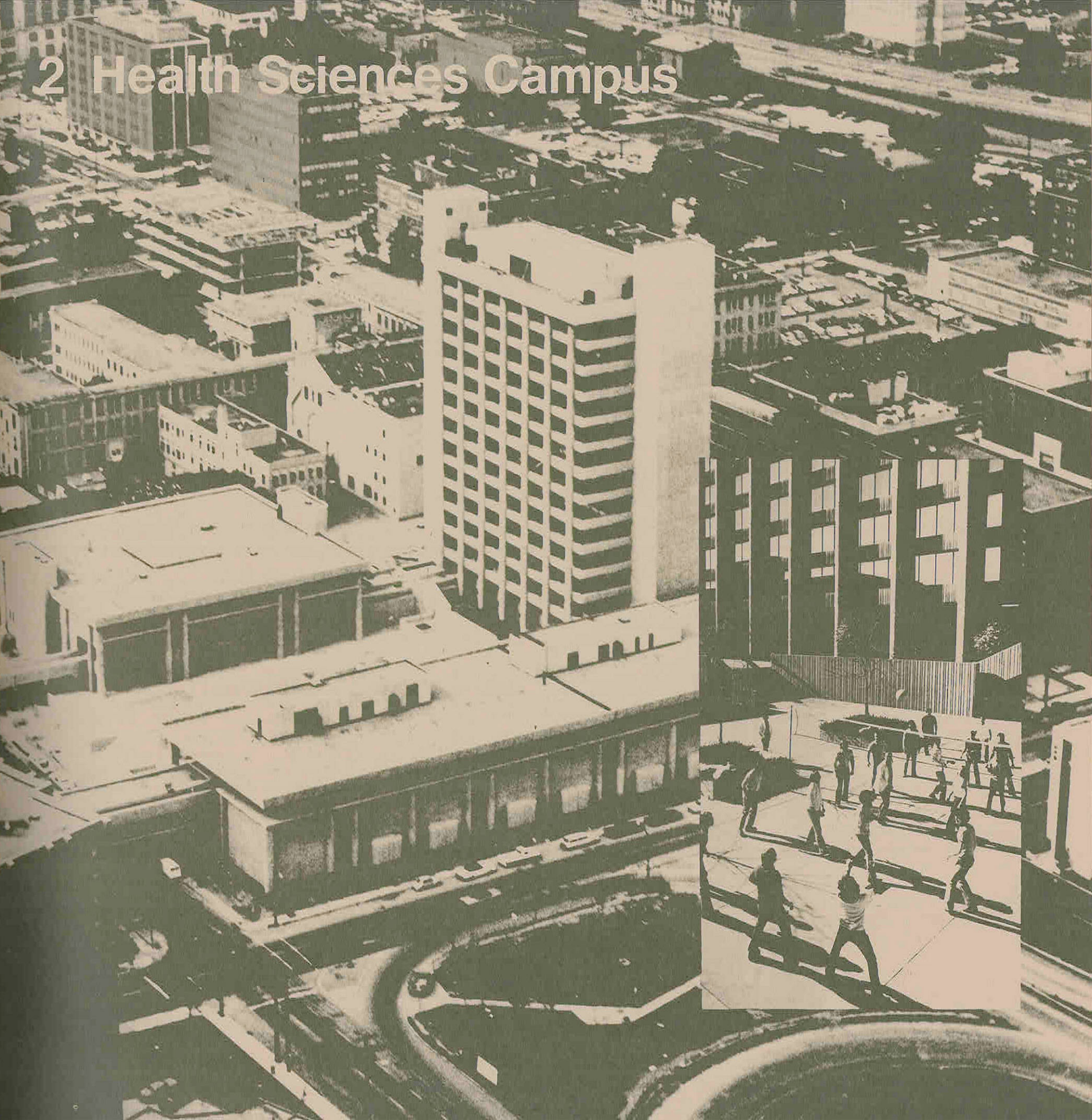
Summary Plan



University of Louisville · Belknap Campus

Long Range Optimum Plan

2 Health Sciences Campus



Phase I

Phase I construction represents existing facilities which were completed and occuped by August 1970. It includes the Schools of Medicine and Dentistry, a Biological Sciences Instructional Building and a Health Sciences Library. Additional existing facilities constructed prior to 1970 include a seven-story Medical-Dental Research Building, Medical-Dental apartments, a Radiation Center, a Child Psychiatry Research Center, and the Kentucky Lions Eye Research Institute.

The Medical-Dental Research Building contains 350 rooms for research laboratories, offices and animal quarters. The Medical-Dental apartments provide housing for students and staff of the respective schools. The Radiation Center functions as a regional center for radiation therapy. The Child Psychiatry Research Center houses psychologists and psychiatrists involved with testing aspects of child psychiatry. The Kentucky Lions Eye Research Institute houses the Department of Ophthalmology of the School of Medicine and contains offices, research laboratories and patient areas.

The remaining four buildings of the Health Sciences Center are interconnected by walkways and were planned and constructed as one complex. The complex is also connected to the Medical Dental Research Building. The 14-story Medical Tower contains offices and research laboratories for the School of Medicine. The basic sciences departments (anatomy, biochemistry, microbiology, pathology, pharmacology, and physicology) are housed on the upper floors. The School of Dentistry building is at the east end of the quadrangle across Preston Street. It houses both the pre-clinical and clinical programs of the dental student's education, thus becoming a special form of hospital. It contains extensive dental clinics, oral surgery clinics, teaching and research laboratories, lecture rooms, and faculty and administrative offices. It also provides space for the Office of the Vice President of Health Affairs.

The three principal joint-use educational facilities are the Health Sciences Library and Commons, the Health Sciences Instructional Building and the Medical-Dental Research Building. The Health Sciences Instructional Building contains the basic science teaching laboratories, support facilities for these labs, student lounges, and a number of specialized support laboratories. The Health Sciences Library and Commons Building also serve the entire Health Sciences Center. The Library houses an extensive collection of medical literature.

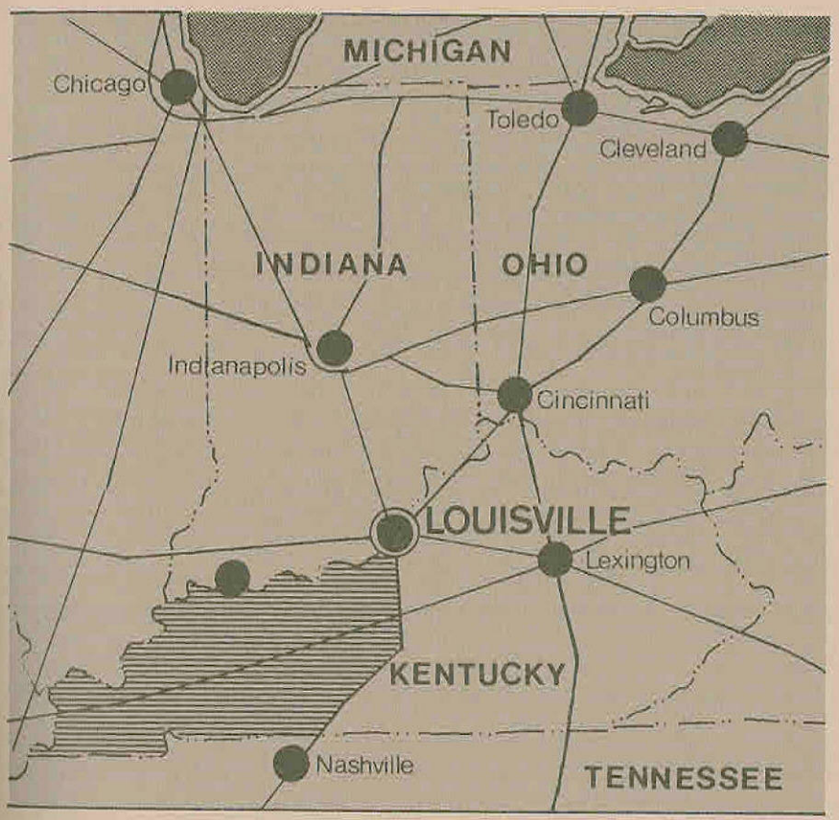
The commons area contains a 500-seat auditorium, a cafeteria, a bookstore, and conference rooms. The Educational Resources Center is also a joint-use facility in the Phase I complex and contains television studios and switching center for closed-circuit television.

With the entry of the University of Louisville into the state system of public higher education in 1970, and expansion of the scope of the Health Sciences Center objectives to include regional service, the University has modified its programs to accommodate its expanded objectives.

The modified programs provide for the development of a broadened base of health service facilities and the interfacing of health education and service programs on a regional basis with other health agencies and health providers in the Commonwealth.

The Louisville General Hospital is currently the primary teaching base from which many clinical programs of the School of Medicine emanate. The faculty of the Schools of Medicine and Dentistry comprise the professional staff of the teaching hospital and exercise responsibility for the education and patient treatment programs conducted in the facility. However, the 385-bed hospital has outlived its usefulness as a teaching and service facility and should be replaced.

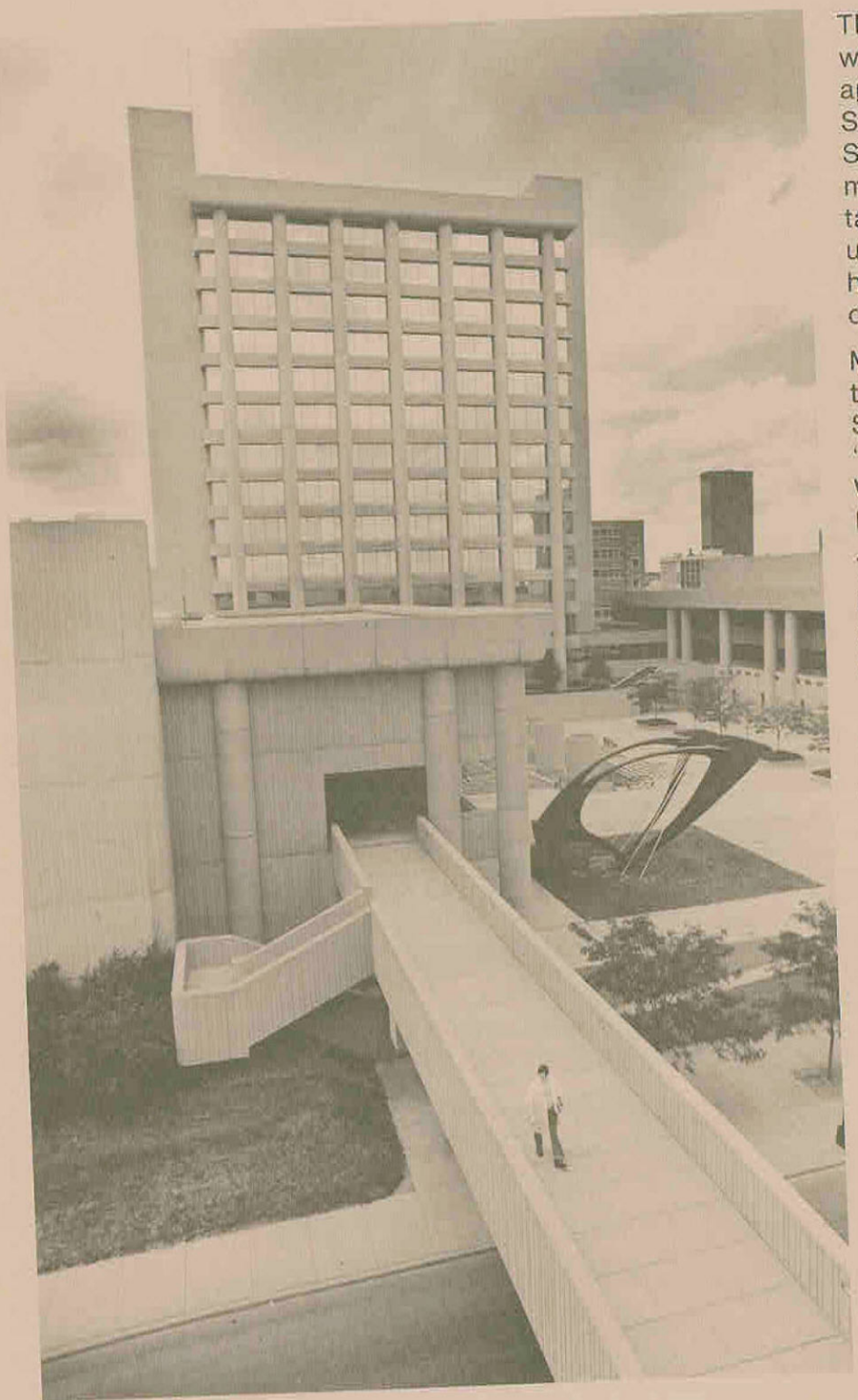
Regional Service Area



The institutions of health education and health care are essential to the well being of any community. Louisville has been fortunate in its medical heritage and is now about to embark on an important era of health science and health care expansion necessary to continued service to Louisville and the surrounding region.

The new University of Louisville Hospital will serve the objectives of the present Health Sciences Center and permit the development of an efficient regionalized health care delivery system.

The Site



The Health Sciences Center of the University is located within the Louisville Medical Center. The area contains approximately 237 acres and extends east from Second Street to Clay Street and north from Broadway to Liberty Street. Sixty-nine acres are specifically devoted to major medical facilities and includes four hospitals: Jewish Hospital, Methodist Hospital, Norton—Children's Hospital and Louisville General Hospital. The Health Sciences Complex houses the School of Medicine, the School of Dentistry and other University programs.

Most University expansion will occur within the east-west traffic corridor adjacent to the Central Business District. Some University expansion will occur outside the main "Medical Corridor," (defined by Chestnut on the south and Walnut Street on the north) but it is generally confined to housing and parking.

The "Medical Corridor" will extend to Clay Street under presently developed programs, but will remain open-ended to extend further east as additional programs are developed beyond 1990.

Development Phases

The development is projected in three phases:

- Phase II Stage 1
- Phase II Stage 2
- Phase III

The following diagrams describe development of various facilities within each phase. The diagrams are guides to projected programs and needs as presently defined, but the actual development of any facility can occur in a phase other than that in which it has been placed. Facility funding, the further development of medical programs, new programs and University priorities, will determine the actual sequence of development.

The Zones

The organization of the proposed facilities for the Long Range Development Plan is generally defined by four zones:

- Clinical/Public Zones
- General Education and Research Zones
- Housing Zone
- Intersection/Overlap Zone

Clinical/Public Zones: Public clinical areas are indicated by the medium tone. Each of the three zones include parking structures that will provide for easy and direct access from parking to the principal facilities within the zone.

The parking facilities will be high turnover (two-to three-hour intervals) facilities with an adequate number of spaces made available to medical faculty, and research personnel.

The Ambulatory Care Building is the central facility for clinical functions. Pediatric clinic space is generally confined to the pediatric complex and Norton-Children's Hospital. The ophthalmology clinics are housed in the Lions Eye Institute facility on Walnut Street.

General Education and Research Zones: The two zones, described in the light tone, contain the primary general education and research facilities. The westernmost zone includes most of the existing Health Sciences Center, the Central Library and the Medical Dental Research Building. The renovated "K" Building will provide 72,000 gsf of additional research space. The library is to be expanded vertically. A new Nursing and Allied Health Sciences Building will be constructed.

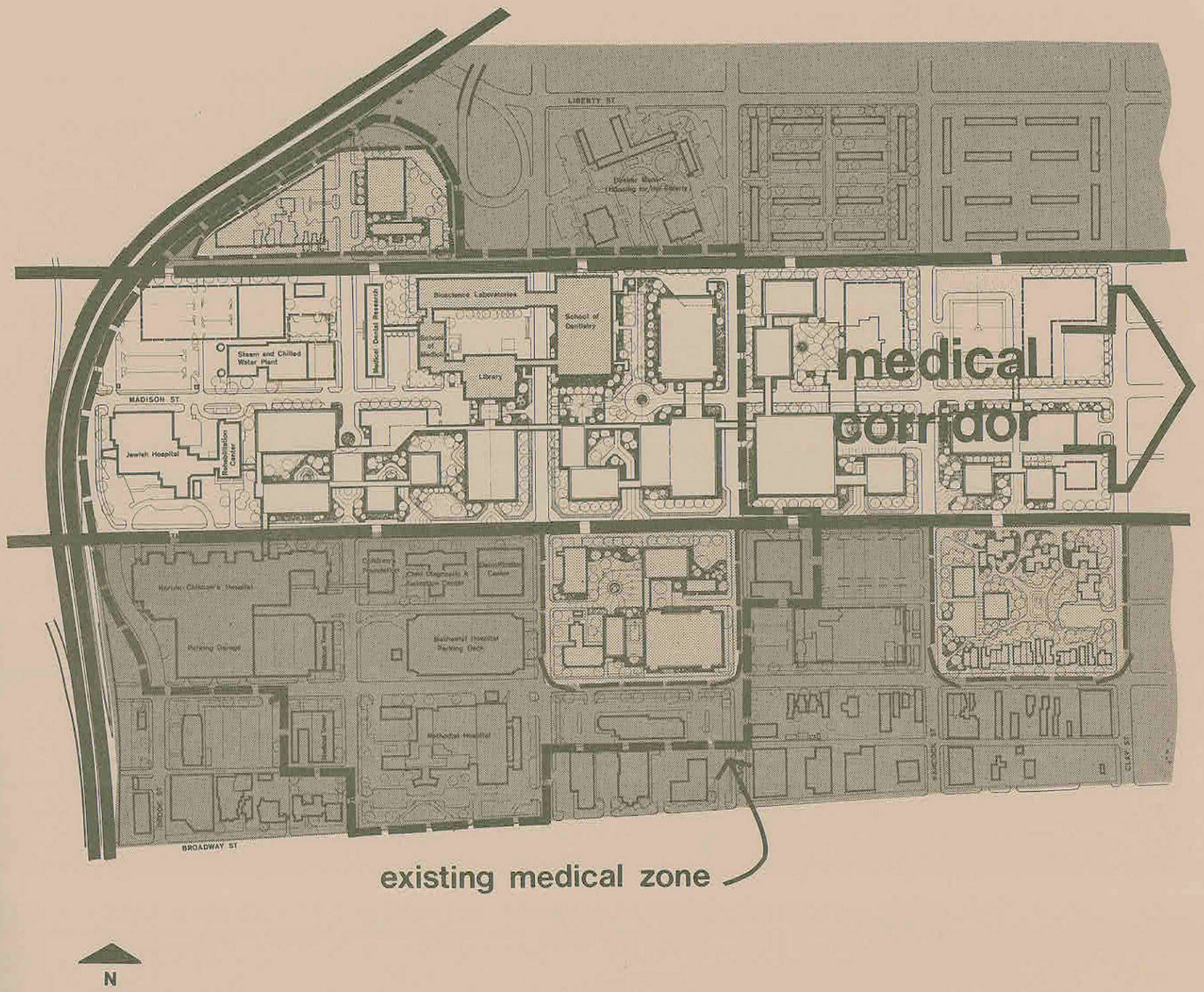
In addition a Center for Continuing Education, a Faculty-Staff Center and a Student Commons will be developed adjacent to and south of the existing Library Building. The eastern education and research zone will be developed as institutes. The most distinct of these will be the Faculty-Research Building with a direct connection to the Concentrated Care Building.

Housing Zone: The outlined area (no tone) includes the existing Medical/Dental apartment building that will be expanded. A motel will be added to serve the Center for Continuing Education. High-rise housing towers and low-rise townhouse units are proposed for the eastern end of this zone. Some existing residential structures (primarily along Grey Street) will be rehabilitated. Further rehabilitation of existing residential structures to the east is recommended as additional housing units are needed within the Medical Center area.

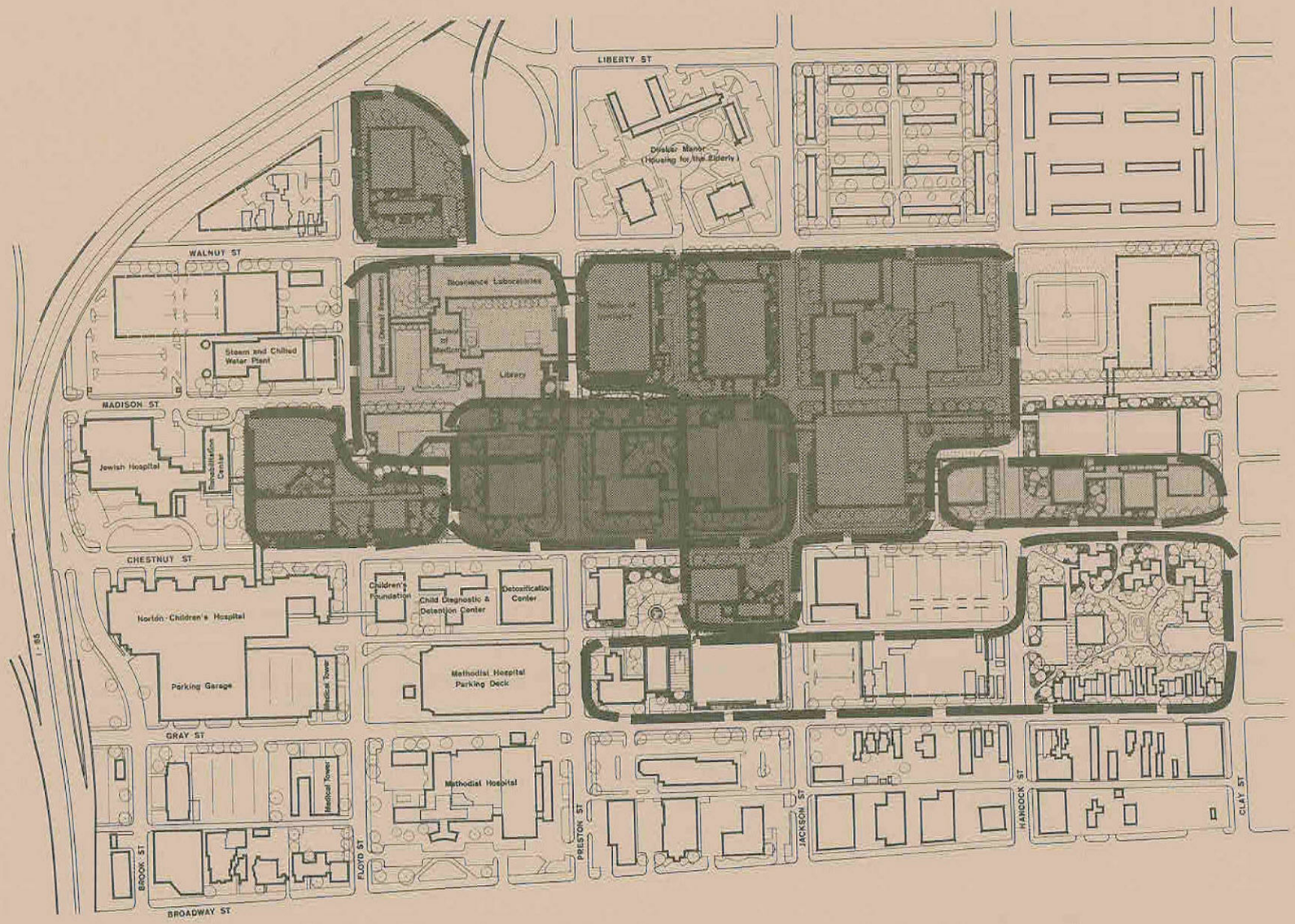
Interaction/Overlap Zone: Spontaneous or casual instruction or student-faculty interaction is important to the total educational programs of the University. The potential for this kind of interaction is enhanced by the relationship of the facilities within the overlap zone (dark tone). The focal point of student-faculty interaction will occur within the Ambulatory Care Building. Casual interaction will be centered in both the Faculty-Staff Center and the Student Commons facility south of the existing Library Building.

The pedway or pedestrian way that will link University facilities will provide additional opportunities for students and faculty to have casual encounters.

The Health Sciences Center



Organization Zones



N

clinical/public zones

general education & research zones

housing zone

interaction/overlap zone

Service Zones

Service to the existing and proposed health care facilities in the Medical Center will be generally confined to an east-west interior street system. This "service spine" will include Abraham Flexner Way in the western portion of the Center and Madison Street in the eastern portion of the Center. Emphasis has been placed on entrances and service areas to facilities from an interior street rather than from adjacent traffic arteries (to avoid interfering with surrounding traffic flow).

West Zone

A major service zone is located north of the Pediatrics Complex at Floyd Street. It provides access to the proposed parking structure and Institutional Services Center. It also allows patient drop-off and pick-up. The primary service area for the existing Health Sciences Complex is east of Floyd Street. This area will be expanded to serve the renovated "K" Building, the proposed Faculty-Staff Center and the Commons and Continuing Education Center.

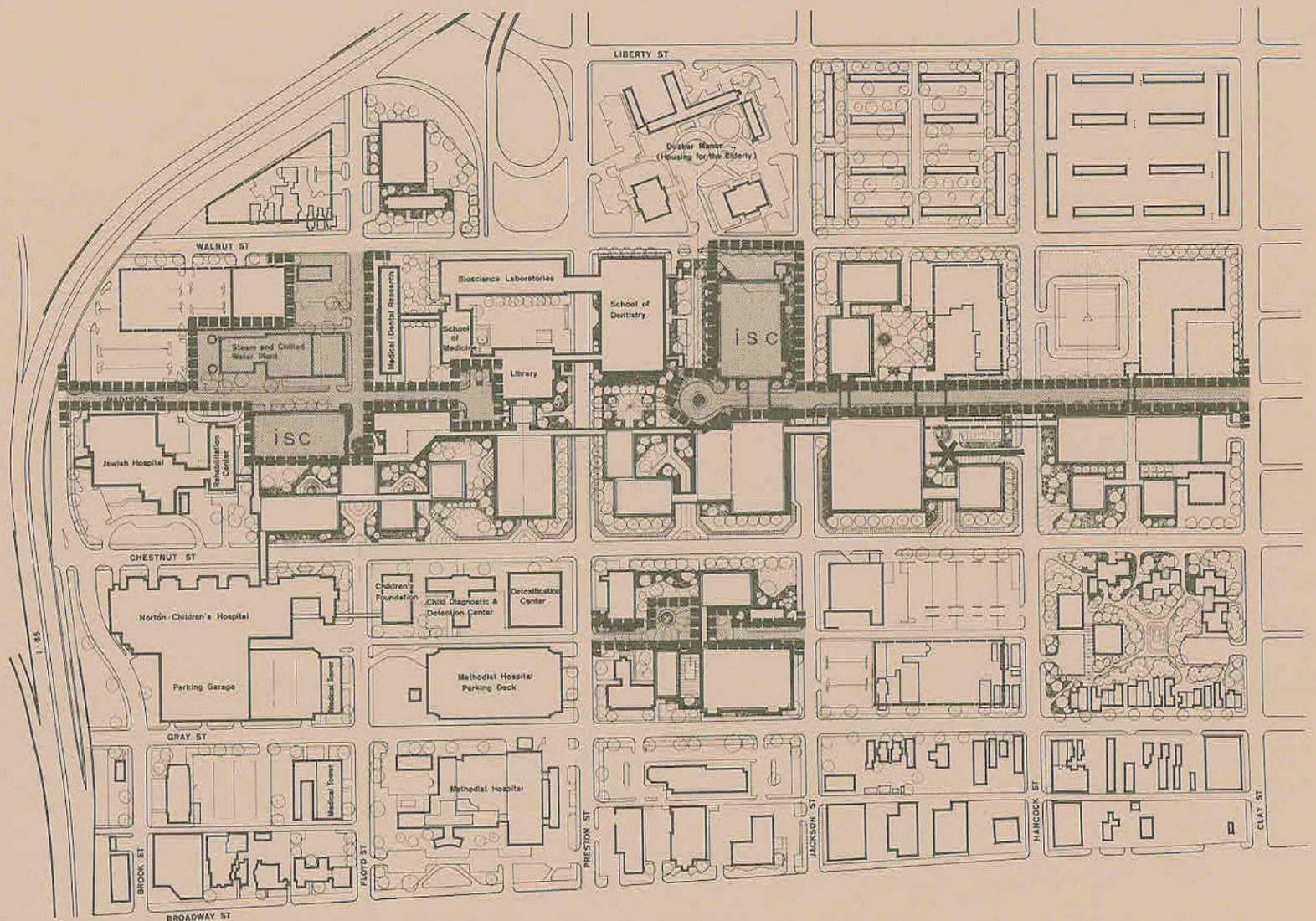
East Zone

An entrance and service for the expanded eastern portion of the Medical Center will occur along what is now Madison Street. It will be extended in an easterly direction as the Medical Center develops beyond presently defined programs. A truck service entrance for the Institutional Services Center (from Jackson Street just south of Walnut Street) is also included.

South Zone

An additional interior street service zone will be developed at the alley between Preston and Jackson Streets (south of Chestnut Street). This zone will provide service access to the proposed motel, the future parking structure and a future institute.

Service Zones



Traffic Flow

Broadway, which borders the project area on the south, is a major east-west street carrying an average of 9,500 vehicles per day moving east and 12,353 per day moving west. Approximately 23% trips east, and 26.3% trips west are Medical Center-related.

Gray Street is not a through street, being broken between Floyd and Preston; west of Floyd Street it carries an average of 1,800 vehicles per day moving east and 2,800 per day moving west. Approximately 68.5% of the trips east are Medical Center-related.

Chestnut Street is a major one-way street to the east. It carries 9,850 vehicles per day, of which approximately 43% of trips are Medical Center-related. Abraham Flexner Way runs between Brook Street and Floyd Street and carries 1,700 vehicles per day east and 2,050 west.

Walnut Street is a major one-way street to the west. It carries 9,500 vehicles per day, of which approximately 23% of the trips are Medical Center-related.

Brook Street is a one-way street running north and receives traffic from I-65 at two points near the Medical Center. An average of 12,000 vehicles enter Brook Street at Broadway, with 42.7% of vehicles having the Medical Center area destination. Eighteen thousand enter Brook at Chestnut Street with 7.4% vehicles with the Medical Center as their destination.

Floyd Street is interrupted between Madison and Chestnut Streets. North of Madison it carries 1,750 vehicles south and 1,800 vehicles north. Of the 1,750 vehicles moving south into the Medical Center area, 70.1% have the Medical Center as their destination. South of Chestnut Street it carries 3,110 vehicles south and 3,000 north. Thirty-two percent of vehicles entering the Medical Center from the south have the Center as their destination.

Preston Street is one-way south and carries an average of 6,650 vehicles daily. Approximately 58% of trips are Medical Center-related.

Approximately 70% of traffic in the medical related area is through-traffic with no medical-related purpose.

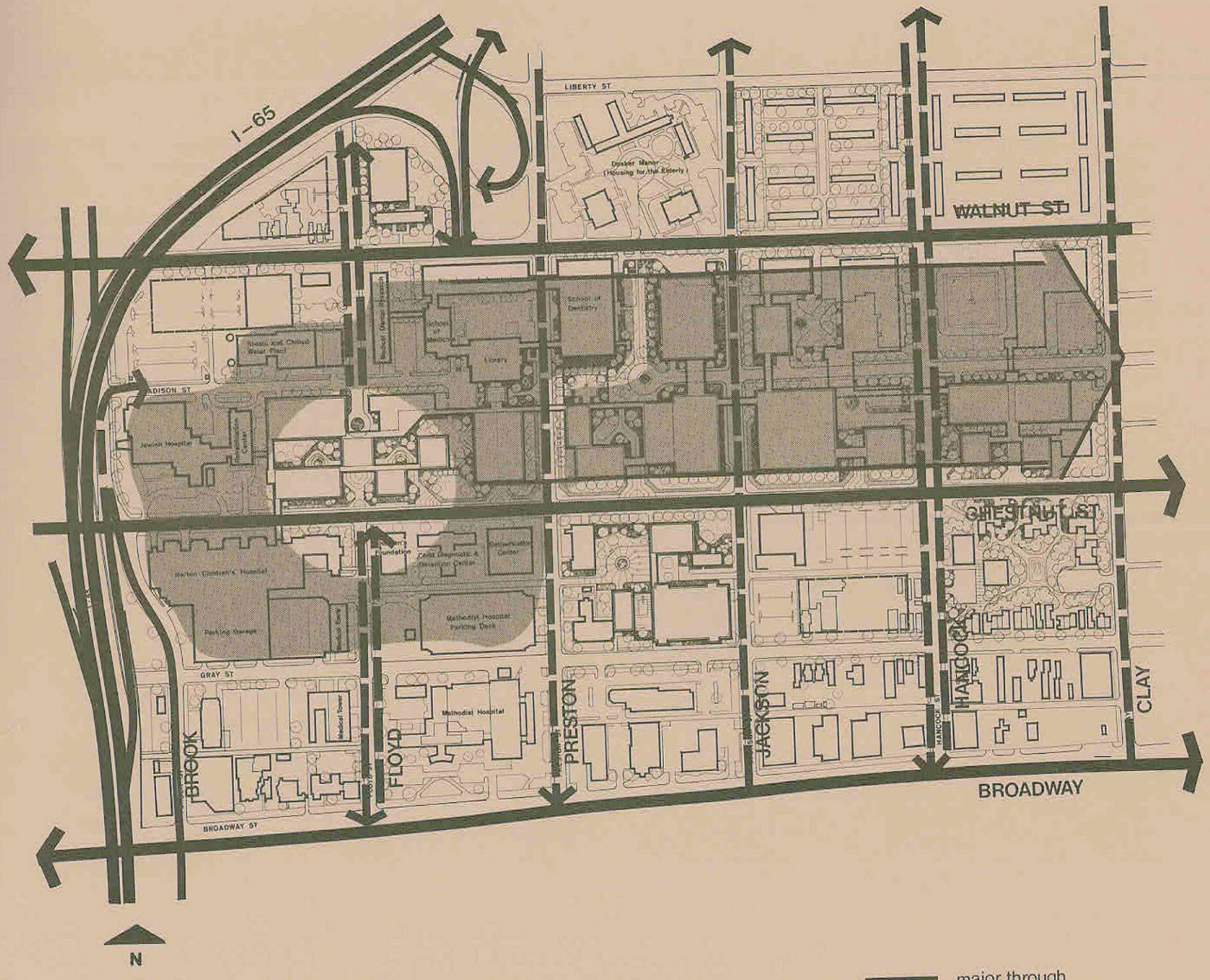
Access to the Medical Center from the North-South Expressway is somewhat less than desirable. From the north, traffic exits the Expressway at Jefferson Street and proceeds south on First Street, then east on Chestnut Street to the Medical Center.

Traffic from the south has three choices of exit ramps—Broadway, Chestnut, and Walnut Streets. Neither of these provide direct access to the Medical Center. Using the Broadway exit vehicles travel north on Brook Street and have the option of turning east into the Medical Center on Broadway, Chestnut, or Abraham Flexner, depending on their ultimate destination. Vehicles exiting at the Chestnut Street exit also have to travel on Brook Street but are restricted from making a right-hand turn onto Chestnut due to the conflict with through traffic on Brook Street.

Daily vehicular traffic within and on the perimeter of the area will increase to almost 113,000 daily trips. Most of the actual increase in vehicular volumes will occur as a result of normal traffic being altered to a more linear system by the addition of the new University Hospital facility and elimination of General Hospital.

The proposed expansion will increase the number of daily internal pedestrian movements from approximately 27,000 in 1975, to approximately 38,000 in 1980. Internal growth combined with four percent per year normal growth in vehicular traffic will increase the vehicular movement within and on the periphery of the area from the current level of almost 88,000 daily vehicular trips to over 99,000.

Traffic Flow



Perimeter Parking System

There are presently 564 on-street (metered) parking spaces and 4,966 off-street parking spaces. The University of Louisville now parks 1,448 cars. With the temporary use of the block between Jackson, Hancock, Chestnut and Madison, 375 more cars can be parked for a total of 1,823 spaces. Parking spaces east of the Dental School have been relocated to this block to allow construction of Parking Deck 1 (A net gain of 193 parking spaces.)

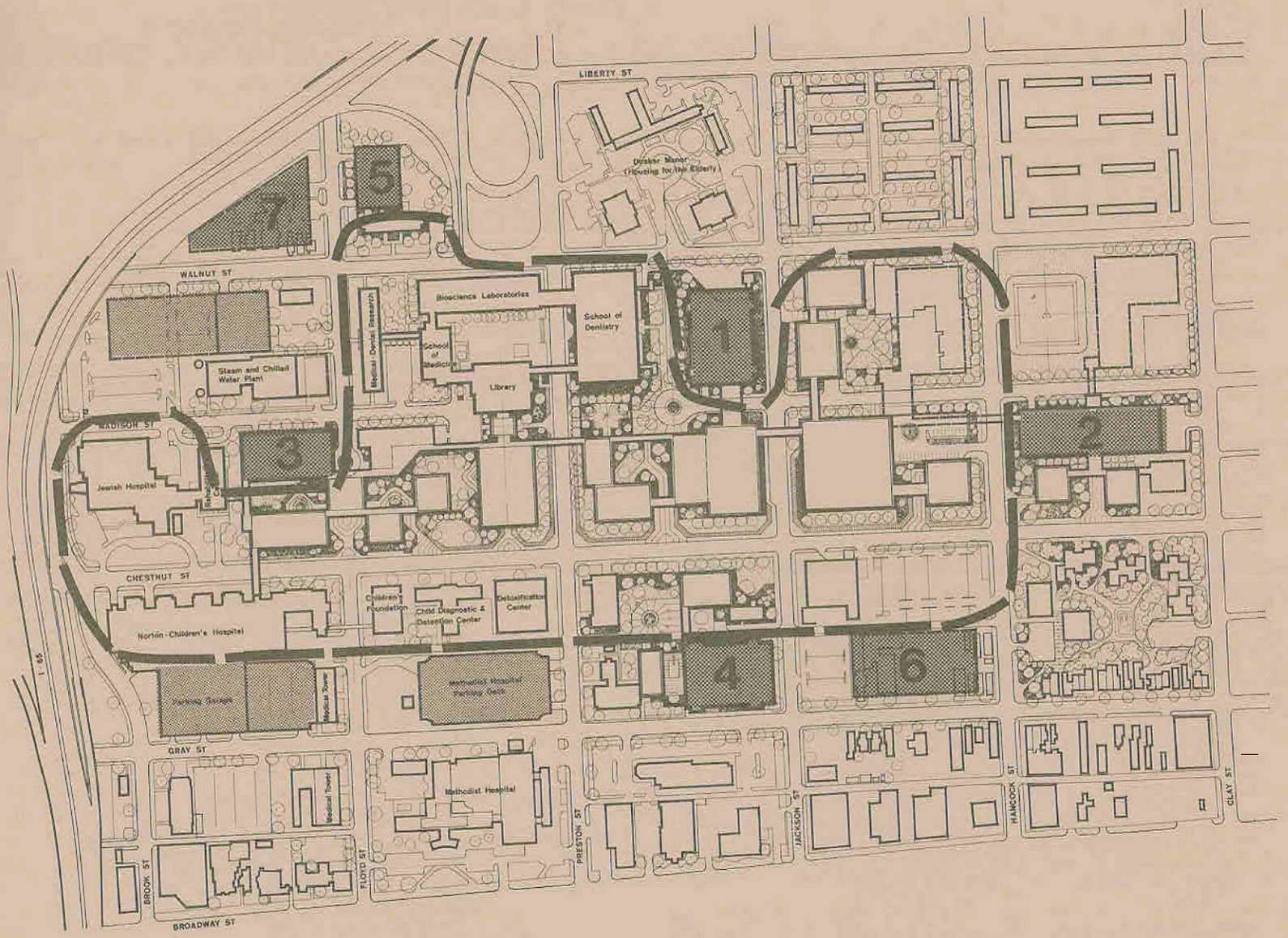
Parking is perhaps the most critical issue in the development of the University facilities within the Medical Center. Parking capability is now at 100% utilization with severe conflicts at shift changes. The estimated parking demand for the University is now projected at 5,000 cars (if parked in surface lots would occupy approximately 37 acres of valuable urban land and create extensive walking distances and the accompanying problems of security.)

A perimeter parking structure system is recommended to better distribute parking and reduce concentration of pollutants. The structures will be built in conjunction with each development phase as land area is taken over by new facilities. The phasing from surface to structured parking will be dependent on the public transit loop system success, fuel cost, availability, facility funding and public bus-train transit beyond 1990.

The structures indicated on the adjoining diagram will house the projected car count but through close monitoring could be reduced as program conditions permit. Even though this possibility exists, all current information suggests the need for Parking Decks I, II, and III. These decks, while providing meaningful parking adjacencies, house Institutional Service Centers for the east portion of the Medical Center (Parking Deck I) and the existing and proposed facilities of the western portion (Parking Deck III). Parking Deck II is for staff and visitor parking for the Concentrated Care Building and the proposed institutes. It will also provide a grade level restaurant, and health-related shops.

At the completion of Phase II Stage 1, an additional 1,700 parking spaces will be needed. Phase II Stage 2 will add a 700-car demand and with completion of Phase III, a 1,300-car demand will bring the total to 5,000 spaces.

Parking



N

University of Louisville proposed parking structures

other hospital parking structures

medical zone

Vehicular/Pedestrian Conflicts

Existing vehicular-pedestrian conflicts are centered along Chestnut and Floyd Streets in the vicinity of their intersection. Pedestrian trip interchanges of General Hospital with either Jewish Hospital or the University of Louisville Health Sciences Complex do not necessitate a street crossing and thus do not create or contribute to a conflict. However, movements between these three institutions and those to the south of Chestnut Street are extensive. The focal point for the conflict of this pedestrian movement with vehicular traffic is the intersection of Floyd and Chestnut Streets.

The heaviest movement in the Medical Center, overall, occurs during the lunch hour. This corresponds to the peak hour of pedestrian activity at the corner of Floyd and Chestnut Streets. Other locations show peak movements during the afternoon shift change hour.

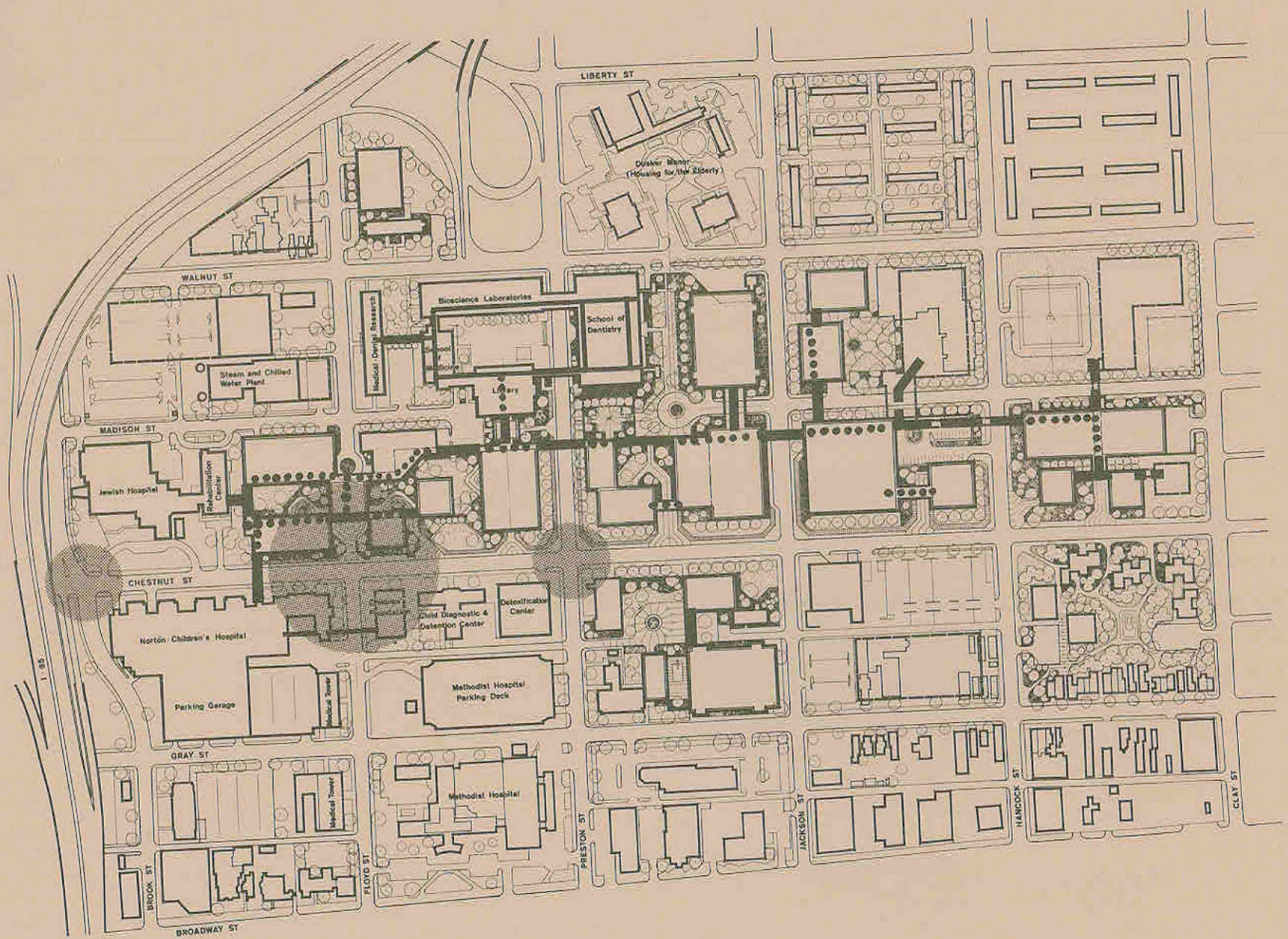
By 1980, a significant expansion will have occurred in the Medical Center Area. Several new facilities are scheduled for completion and should be operational by then. These new facilities will generate additional travel due to increases in numbers of employees, patients and visitors.

Principal traffic arteries carrying high volumes of vehicular traffic through the Medical Center impede the movement of pedestrian traffic. Provision for pedestrian movement is important, not merely for convenience and security, but also for a complete interchange of services and medical personnel among the institutions of the Medical Center. The pedway concept was developed as a means to define a controlled pedestrian circulation network.

A pedway can be an isolated system occurring above or below ground linking facilities along its route; a series of links or bridge elements between existing or new facilities interconnecting internal circulation elements which are a part of these facilities; or a system that is a combination of these.

The system proposed is a combined system of links and bridges connecting existing and new facilities at the second level of proposed facilities. The system will develop in segments as the Health Sciences and Medical Center facilities are added. Facilities should be interconnected in clusters such as Parking Deck I, the Ambulatory Care and the Concentrated Care Buildings. The Pediatrics Complex will be clustered with Parking Deck III, Jewish Hospital and Norton-Children's Hospital. As new facilities are planned, primary emphasis should be given to major internal circulation elements and their relationship to pedway connectors. Most Medical Center facilities will eventually be interconnected.

Pedestrian Circulation



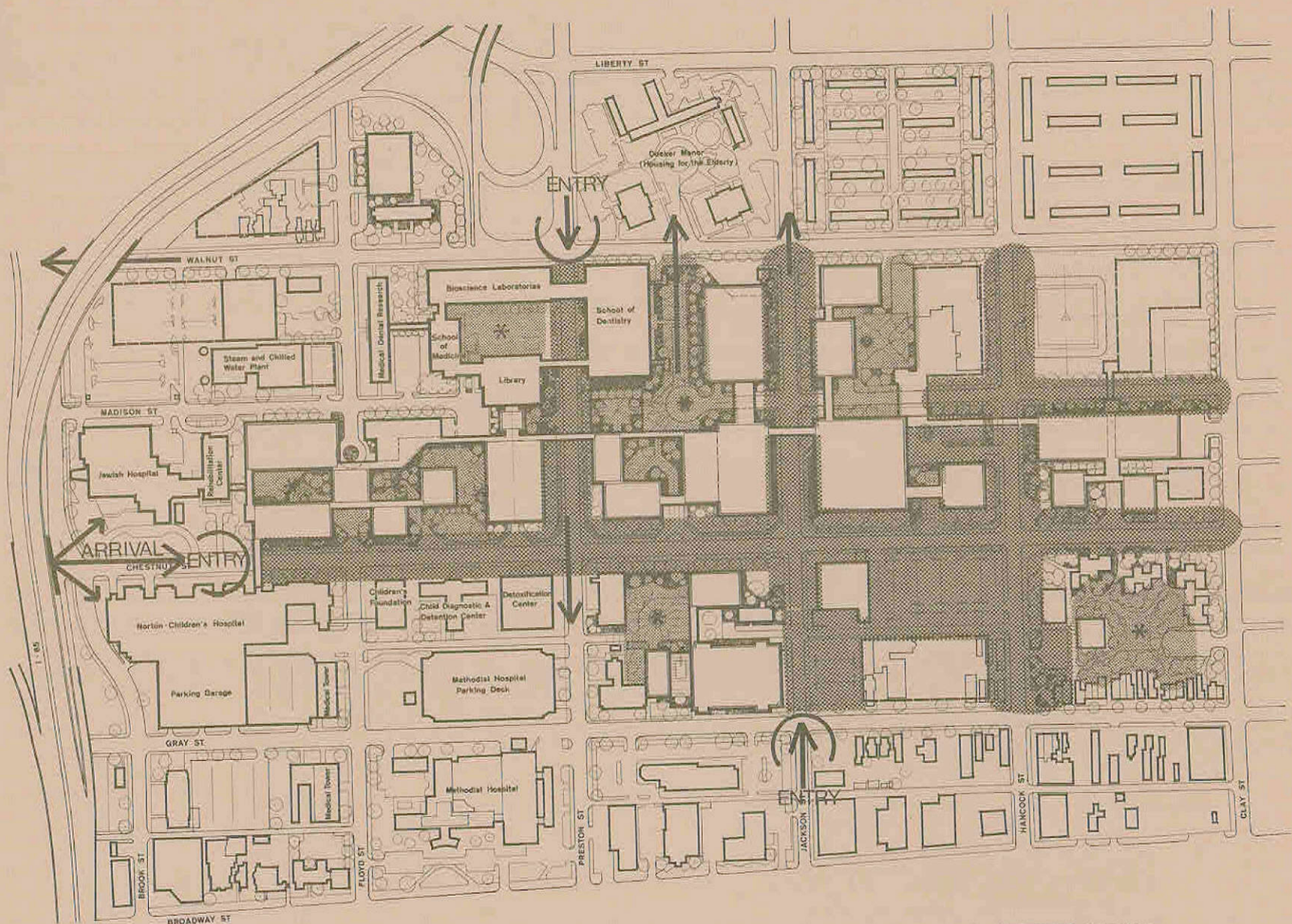
Open Space

The open space system of an urban area should be designed to provide a sense of orientation and "place". Elements to consider are entry points, gateways, focal points and edges.

The North-South Expressway creates a strong edge on the west side of the Medical Center. This edge is additionally important in that it contains two entry points or gateways. Moving east along Chestnut Street from the business district an entry is suggested by underpassing I-65. Moving west along Walnut Street and underpassing I-65 there is a sense of departure. An established housing zone north of Walnut Street creates another edge as does Broadway to the south. The eastern end of the Medical Center is less defined. As University facilities are constructed between Chestnut and Walnut Streets this east edge will be better defined, but will be moved to the eastern most limits at the L & N Railroad right-of-way.

The Health Sciences Center plaza area is a focal point for the existing complex. Additional open spaces will be developed as facilities are added. These spaces will include vehicular and pedestrian circulation zones, active areas and "green oases". Some areas will serve specific needs. The courtyards of the Pediatric Complex will provide outdoor play areas. Other areas will capture views and vistas of adjoining neighborhoods and business zones.

Open Space System



Building/Land Ratios

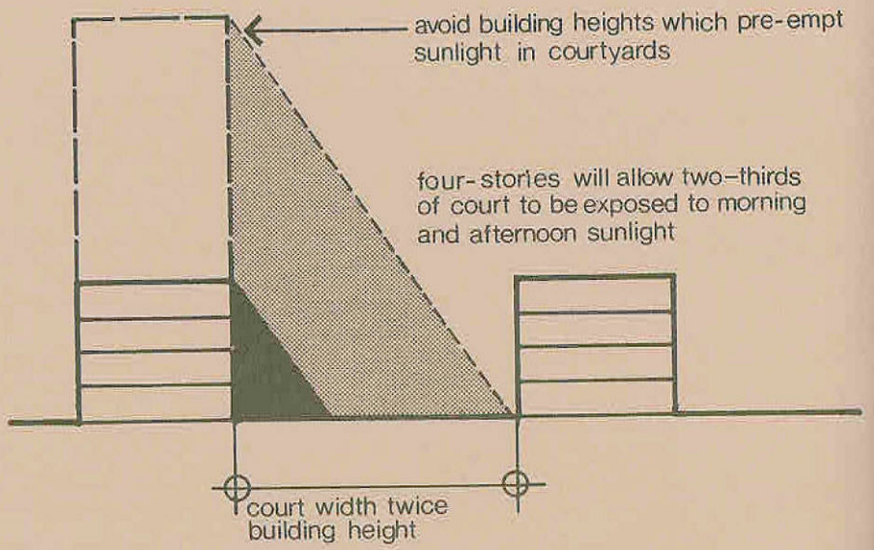
Of particular importance in the development of the facilities plan has been the evaluation of ground area cover and floor area ratios of existing facilities. These evaluations suggest the need to expand in a linear pattern rather than a circular or concentric pattern around the already congested western portion of the Medical Center.

Existing ground area cover* range from 11% in eastern blocks to 74% in western blocks. Floor area ratios** by block areas range between .23:1 to 2.7:1.

Excessive concentrations of buildings, vehicles and pedestrians in the west end of the Medical Center would be further aggravated by the introduction of a new hospital and the accompanying facilities. It is evident that the further compaction of the center is not only undesirable but not feasible in that there is not enough land to accomplish facility expansion in the future.

The development of desirable shade and shadow patterns generated by building heights and masses has been studied. Open spaces can be enhanced or rendered undesirable due to light and shade patterns. Although specific building height and configuration will be determined as programs are reviewed in detail, the general pattern and variety of open spaces and building masses as indicated will be beneficial to the users of the Medical Center.

Proposed development suggests ground area coverage not to exceed 60% and floor area ratios not to exceed 2.7.



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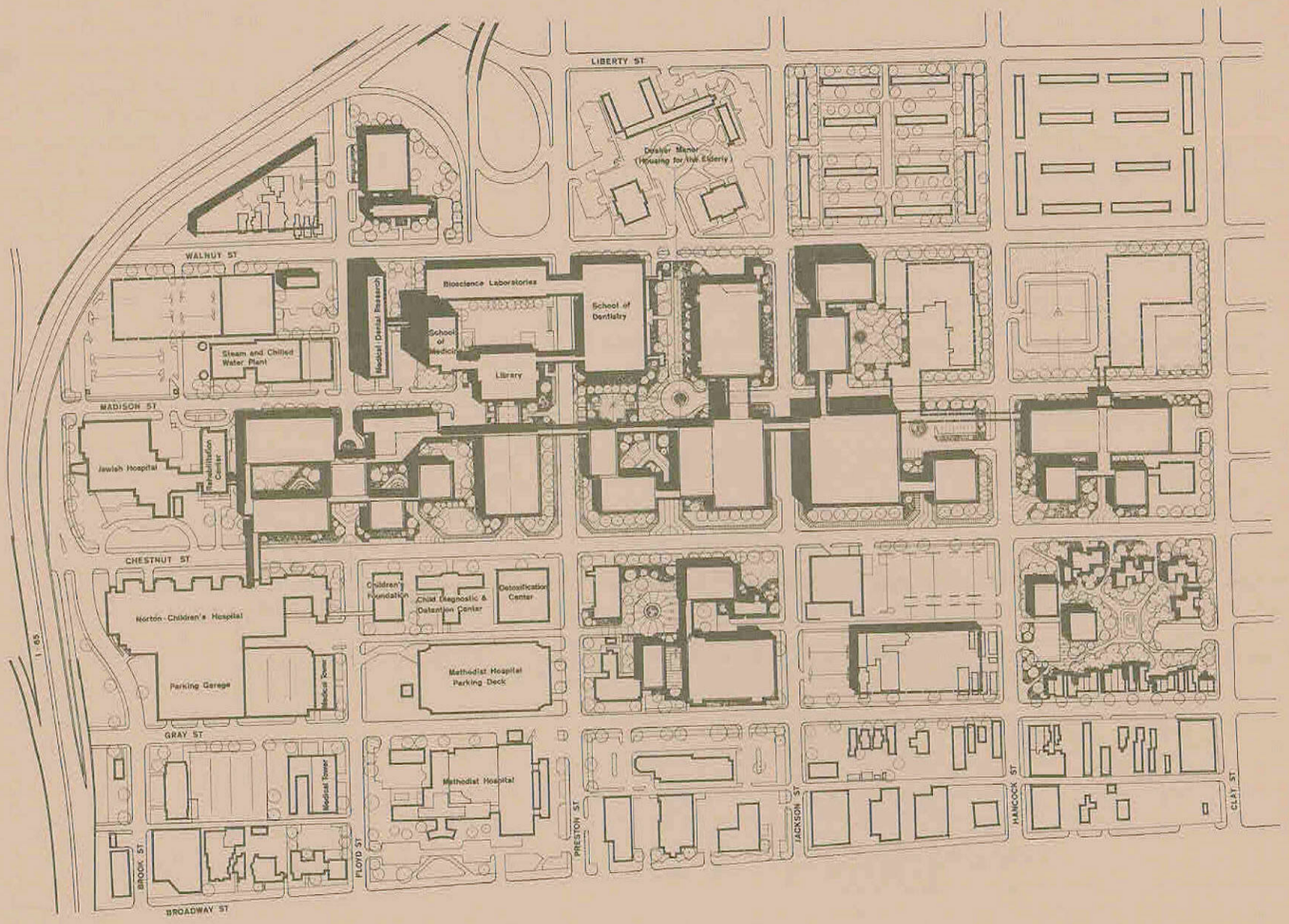
* *Ground area cover ratio is a percentage of the area of land occupied by a structure related to a specific site area.*

** *Floor area ratio is a factor of the total floor area of a building to a specific site area.*

Building Masses



Landscape Opportunities

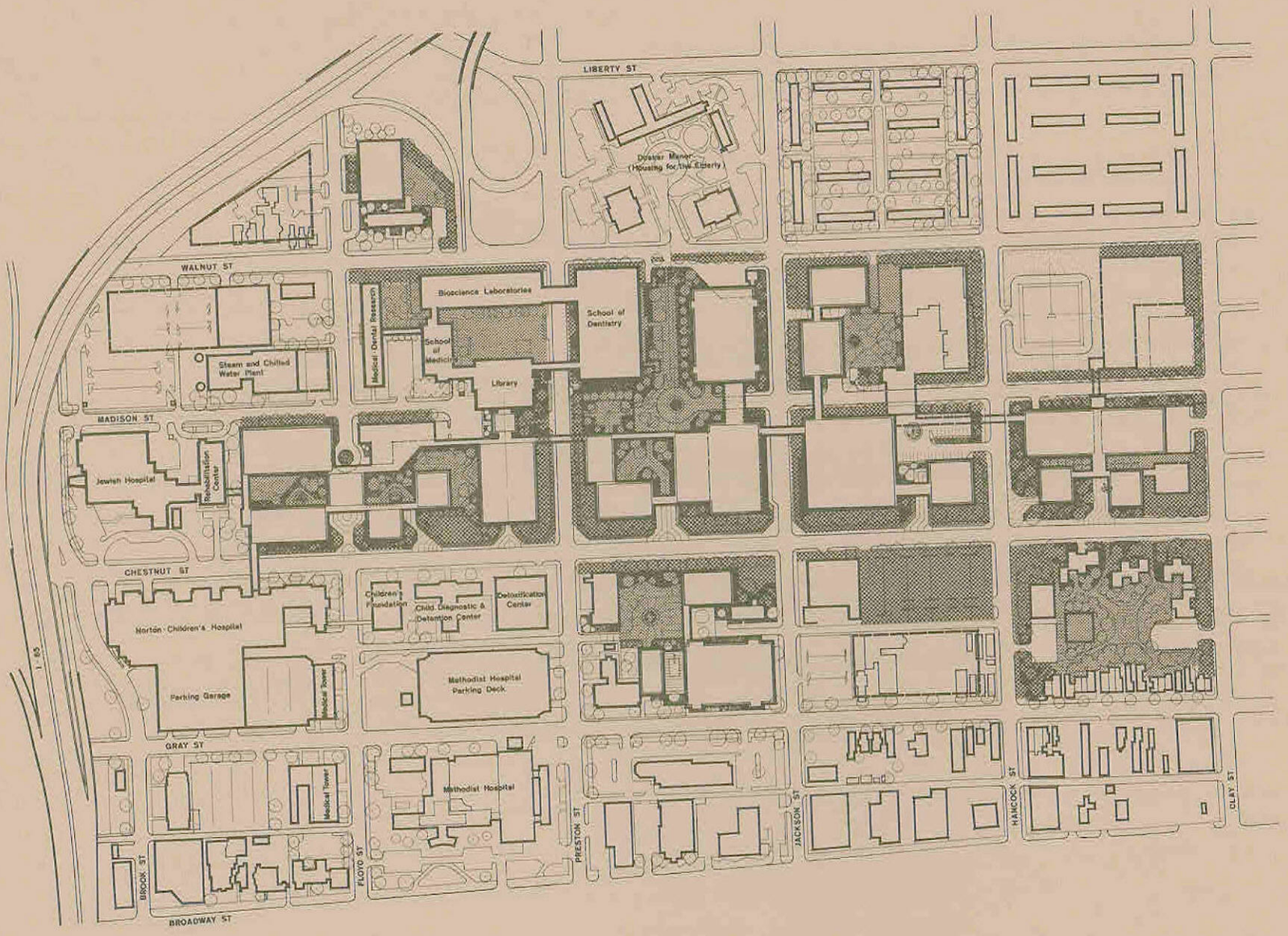
The articulation of building massing and circulation elements generates landscape opportunities relating to both vehicular movement zones and interior pedestrian zones.

The adjoining diagram suggests a variable setback zone with small building forecourts and opportunities for visual penetration along the major traffic arteries. The zones will be developed in relationship to entrances scaled to the pedestrian. Street trees will be introduced to soften the street edges. They will be used to lead to entrances and internal landscaped courtyards.

Plant materials will be used as screens and buffers for surface parking areas and service zones.

Louisville's urban open space system, including the new River City Mall, has responded to the needs of people with both active and passive landscaped zones. The Facilities Development Plan encourages the balance of hard and soft zones within a unified landscape matrix. While the principal focus of the plan is the appropriate relationship of medical facilities, this relationship can be enhanced by a comprehensive landscape design that recognizes the need for natural as well as man-made materials in the environment.

Landscape Concept



N

perimeter / buffer planting zones

interior courtyards

Heliport Sites

The selection of a heliport site involves four major considerations:

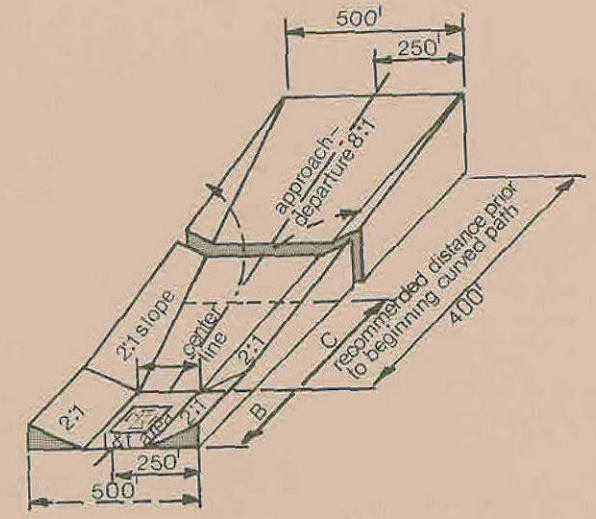
- Location and physical layout
- Operational safety
- The effect of navigable space
- The effect on the surrounding community

Heliports can be located on grade or on an elevated platform. Ground level sites are the least costly to prepare and normally provide the most convenient access for individuals using the heliport. Rooftop or elevated heliports do not require additional land surface, thereby reducing land acquisition costs. Rooftop landing areas can eliminate certain types of aircraft but in most cases provide better flight access.

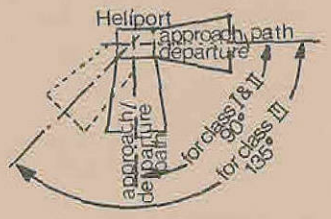
Approach and departure paths leading to and from a heliport are a major safety consideration and should provide emergency landing areas along the flight path for single engine craft. Multi-engine helicopters do not need this provision. These paths begin at the edge of the landing and take-off area and are aligned as directly as possible into the prevailing winds. It is desirable to have at least two paths which should be separated by an arc of at least 90 degrees. Curved paths are practical and in many cases are necessary to provide a suitable route. The adjacent diagram illustrates general approach-departure path recommendations.

The FAA conducts studies to evaluate heliport site selections and are primarily interested in proposed heliports' effect on safe and efficient use of airspace related to other established aeronautical activity.

The specific requirements of a heliport must be determined on the basis of location and use and should be coordinated with local agencies.

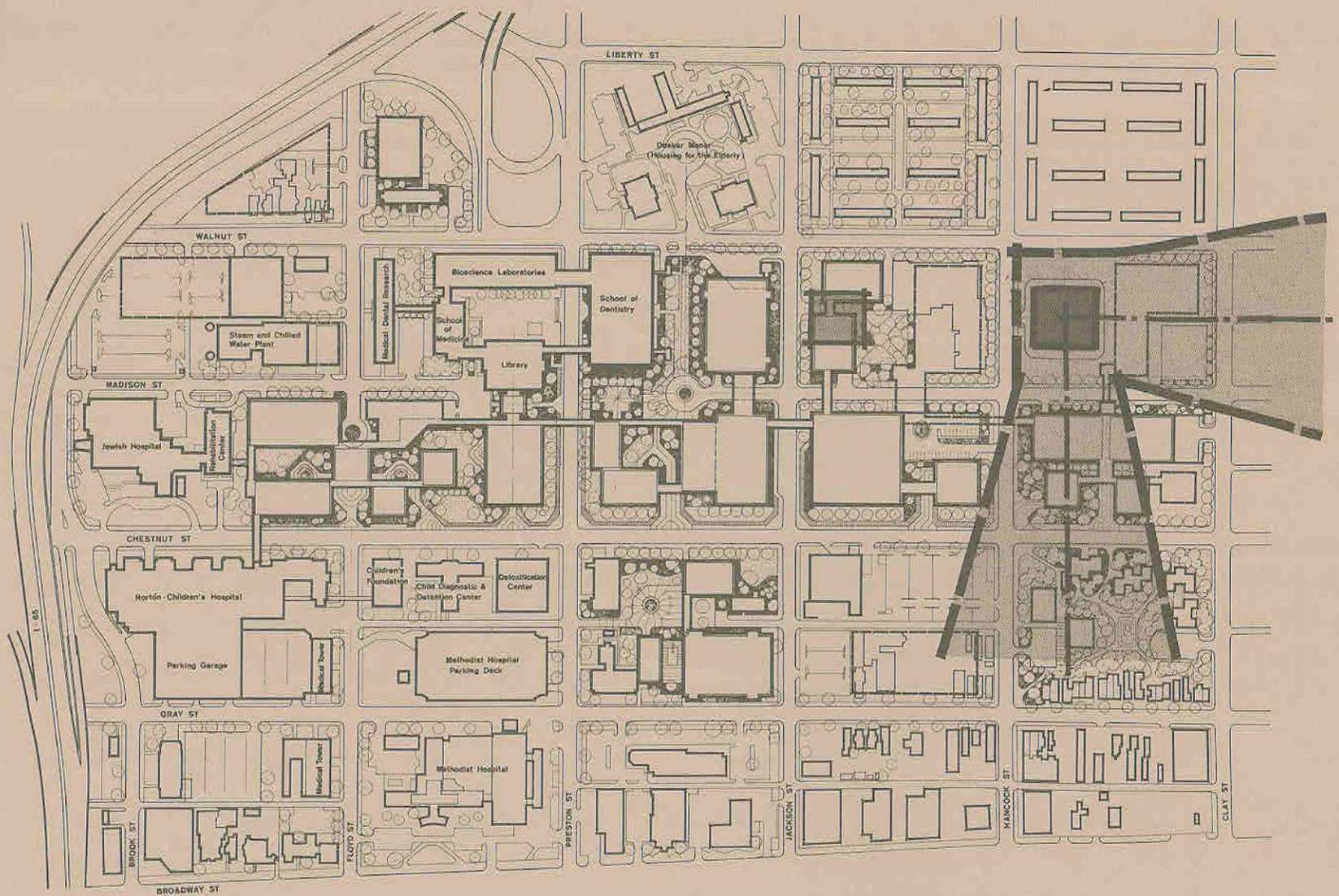


Perspective of approach–departure path



Desired minimum angles between approach/departure paths

Heliport



N

phase III location

temporary location prior to Phase III

approach-departure path

University of Louisville · Health Sciences Center

Long Range Development Plan

Plan Description
Phase II Stage 1

Accommodation of the educational programs of the Schools of Medicine and Dentistry in the Louisville General Hospital is no longer feasible. Therefore, the components of Phase II are intended to complement Phase I construction and to meet the clinical educational commitments imposed by the University's expanded objectives.

In addition, Phase II, Stage 1 components will replace the obsolete Louisville General Hospital with a University teaching facility which more appropriately reflects the aspirations of the University, the community and the region it serves. The four major objectives of Phase II, Stage 1 are as follows:

1. To provide a principal teaching hospital for the University of Louisville Health Sciences Center.

2. To provide an emergency and acute care center for the geographical area.

3. To provide a primary health care facility for members of the community who are unable to pay for health services.

4. To function as the core unit for a regionalized health care delivery system for the western half of the Commonwealth.

These objectives provide the framework for developing a construction package which establishes the physical base for clinical health sciences education, service and research at the University of Louisville. The current construction proposal includes four projects which complement Phase I Health Sciences Center construction: A University Core Regional Teaching Hospital (Concentrated Care Building), a clinical faculty office tower (Ambulatory Care Building) and a combined parking structure and institutional services center (Parking Deck I) renovation of the "K" Building (for clinical research) of the present Louisville General Hospital.

Recognizing that a modern hospital contains activities which require four distinct building types, this separation of the hospital into distinct structures is proposed as a specific and positive step to construction economy. The four building types include a modified hotel for in-patient care units, a medical office building for faculty offices, administration, clinics and cafeteria; an industrial building containing logistics, shops, stores and lockers and a high intensity scientific building for surgery, radiology, intensive care, laboratories, delivery, etc.

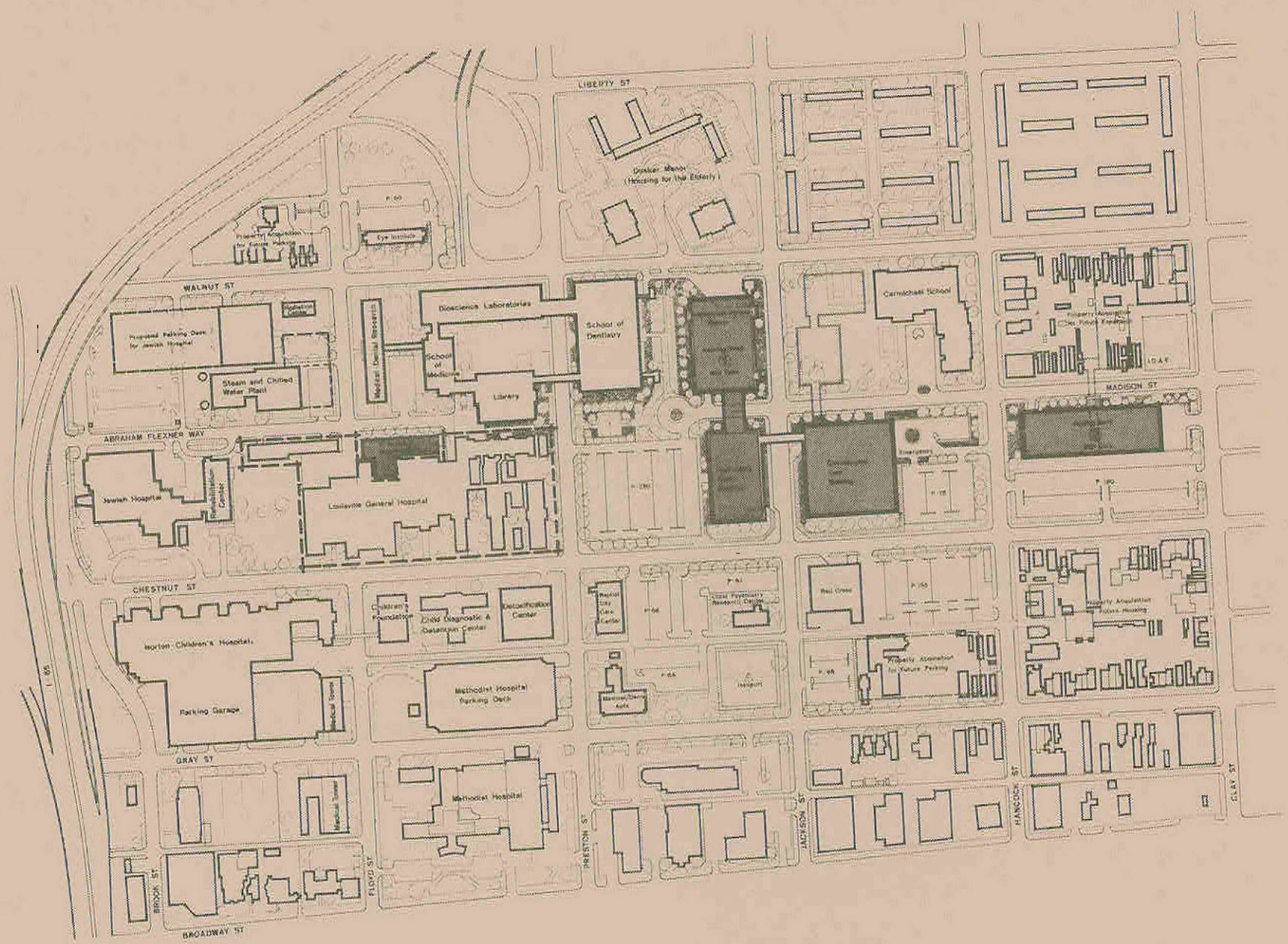
The Concentrated Care Building of the Core Regional Teaching Hospital will contain only those elements essential to in-patient care. The Ambulatory Care Building will be directly related to the Concentrated Care Building. This building will provide permanent administrative, diagnostic and ambulatory care treatment facilities for the clinical faculty. The building will centralize administrative clinical faculty activities, freeing space temporarily occupied in the Medical-Dental Research Building and the Biological Sciences Tower.

The parking structure is an essential component of this project for purposes of patient access and because the site for the Core Regional Teaching Hospital is currently used for surface parking. This structure will also contain institutional service components that are required to support the elements of Phase I. Its location is a conclusion of the overall Comprehensive Facilities Development Plan and will be integrated with the main circulation patterns of the Health Sciences Center.

The utilization of a section of the vacated Louisville General Hospital, referred to as the "K" Building, will accommodate clinical research and specialty clinics that lend themselves to a laboratory environment.

A total of 603,000 gross square feet of space is proposed for this phase.

Phase II Stage 1



Long Range Development Plan

University of Louisville · Health Sciences Center

Plan Description
Phase II Stage 2

This phase of the Long Range Development Plan proposes the following additional facilities:

- Student Commons and Continuing Education Center
- Faculty-Staff Center
- Nursing and Allied Health Sciences
- Cancer Institute
- Neurosciences Institute
- Pediatric Complex
- An institute program (undefined)
- Additions to "K" Building
- New housing
- Parking Deck 3 (500 spaces) including an Institutional Services Center
- Parking Deck 4 (750 spaces)

A total of 633,200 gross square feet of new space is proposed for this stage of construction.

Two additional parking structures, housing a total of 1,250 cars, are proposed. Parking Deck 3 will include 49,200 gsf for an Institutional Services Center for the western portion (west of Preston Street) of the expanded campus. The inability to adequately "tunnel" under Preston Street made this additional Institutional Services Center location necessary.

Parking for this phase includes 854 surface spaces and 2,902 spaces in decks for a total of 3,829 spaces.

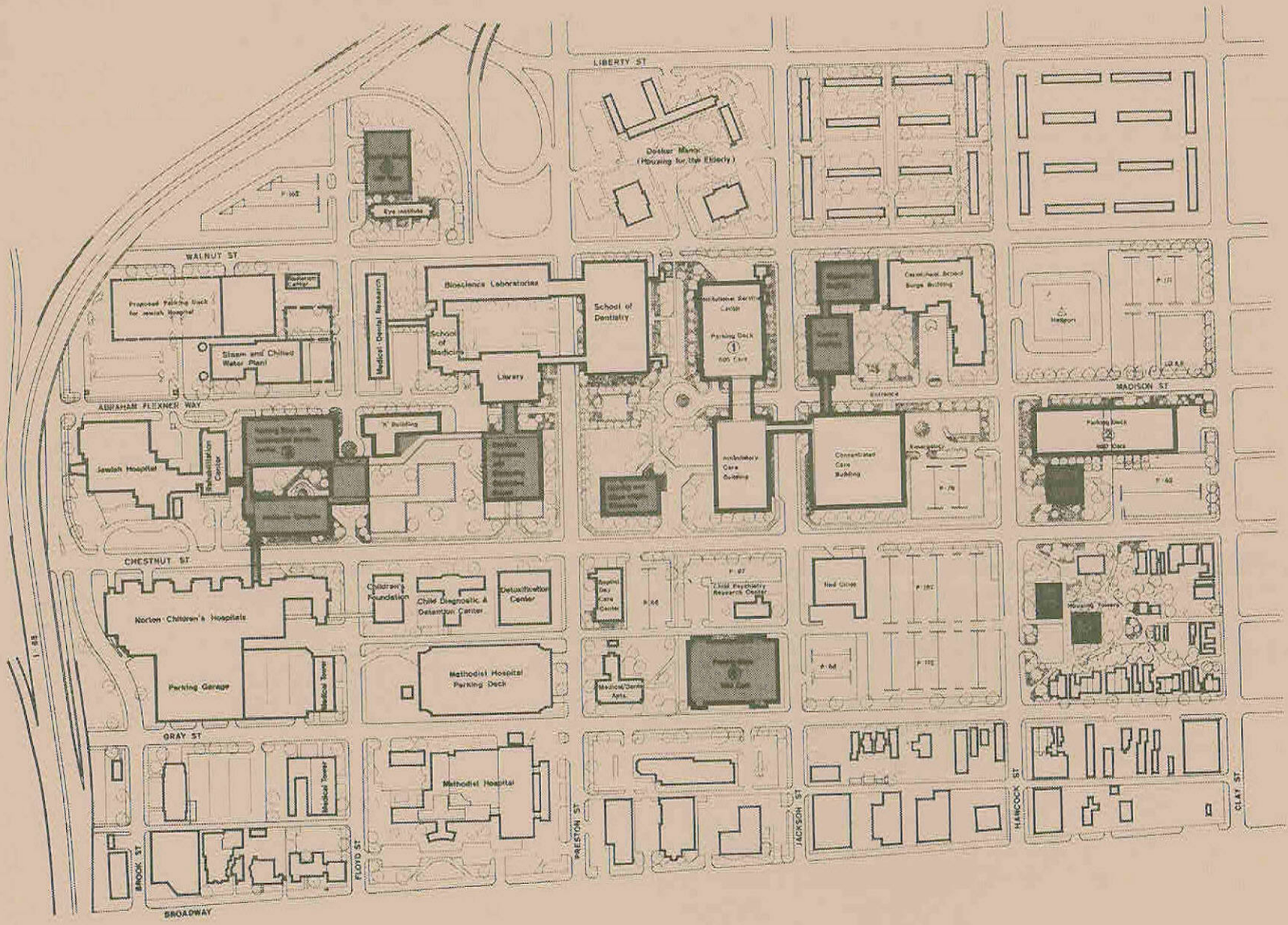
The plan indicates additional "pedway" link connectors between facilities.

Construction in this stage includes a School of Nursing and Allied Health Sciences, a Center for Continuing Education, a Student Commons and a Student Apartment Complex. The first of the three programs is under active development at this time. Since space is required now and space requirements will increase rapidly before any possibility exists for permanent space, interim space will be provided. As these programs mature, definitive space projects and permanent quarters can be developed.

These projects are recognized as essential components of the Health Sciences Center Master Plan. It is difficult to project priorities and timetables as they will change with the funding patterns and health manpower needs of the Commonwealth. However, every effort will be made to consolidate the construction phasing and accomplish the objectives of the master plan for the Health Sciences Center in the shortest possible time span.

At the conclusion of Phase II Stage 2 construction, the major educational elements of the University Health Sciences Center will have been activated. This means that Phase III deals principally with provision for unanticipated elements and growth of existing elements. Major changes in health care delivery are taking place and will continue to do so during the remainder of the decade. The final effect of these changes on the need for space is largely unpredictable.

Phase II Stage 2



Plan Description
Phase III

This phase of the Long Range Development Plan proposes the following additional facilities:

- Expansion of the Concentrated Care Building
- Expansion of the Ambulatory Care Building
- Institute expansion (vertical Neurosciences Institute)
- An institute (south of Parking Deck 2)
- An institute (adjacent to Child Psychiatric and Research Clinic)
- Clinic Research Building
- Expansion of the Nursing and Allied Health Sciences Building
- Expansion of the Library (vertical expansion)
- Expansion of the "K" Building
- Expansion of Pediatric Complex
- Expansion of the Student Commons and Continuing Education Center
- New housing
- Rehabilitation of some existing housing (north side of Grey Street between Hancock and Clay)
- Parking Deck 5 (400 spaces)
- Parking Deck 6 (900 spaces)
- Parking Deck 7 (500 spaces)

A total of 817,100 gsf of new space, essentially expansion of previously constructed facilities, is proposed for this phase.

Three additional parking structures providing 1,800 spaces is proposed. Parking for this phase includes 336 surface spaces and 4,702 spaces in decks for a total of 5,038 parking spaces.

The plan indicates the extension of the pedway linkages.

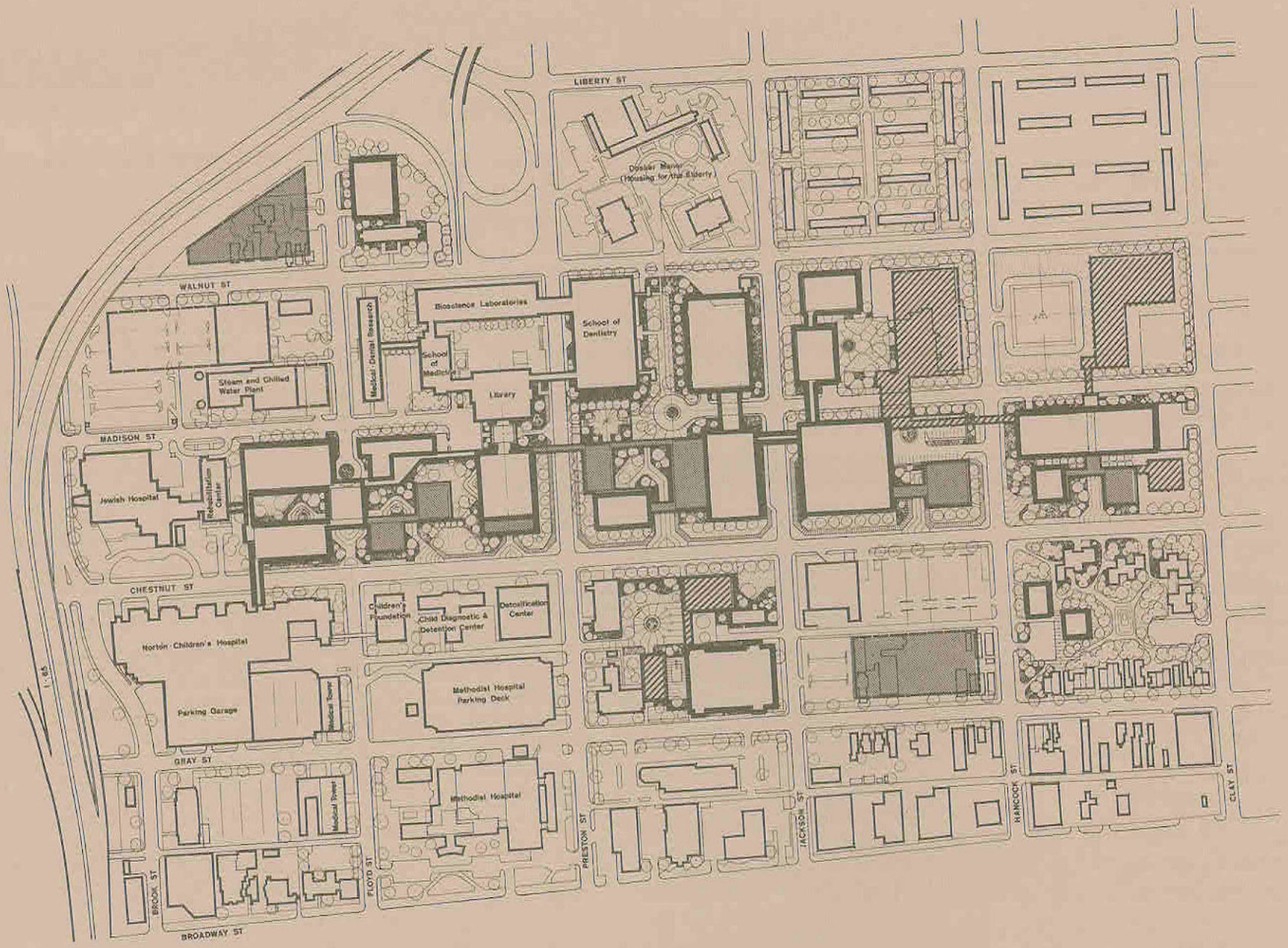
There are two additional growth patterns which should be anticipated in terms of future development.

First, a bed addition to the core hospital is being planned in an orderly manner during Phase II, Stage 1 to avoid displacement of existing operations at the time of expansion. A bed expansion of approximately 50% is included in the agency plan.

Second, a pattern of special function units or institutes has been developing within the Health Sciences Center. Eye, rehabilitation , radiotherapy, child evaluation, and the psychiatric research units are examples. Other institutes such as cancer, neurosciences, handicapped children, heart and health care delivery are included in the program.

Phase III, then, deals with provisions for anticipated as well as unanticipated elements and growth of existing elements. Changes in health care delivery systems are taking place and will continue to do so. Recognizing that the exact nature of these changes is not totally predictable, the Comprehensive Facilities Development Plan provides area for the orderly addition of these elements to the Health Sciences Center with special emphasis on site selection as it reflects internal relationships of the center. The Health Sciences Center also has extensive interaction with affiliated institutions. Special attention has been given the western regions of the center where physical location of University projects affect these institutions.

Phase III



N

proposed

existing

future

University of Louisville · Health Sciences Center

Long Range Development Plan

Utilities

existing

General

The present Health Sciences Center is now served with water, sanitary sewers, storm sewers, gas, electricity and telephone systems. Closed-circuit and commercial television is also available. Major buildings are served with steam and chilled water from the Medical Center Steam and Chilled Water Plant located in the Health Sciences Center.

Water

The water supply system is owned and operated by the Louisville Water Company, a city-owned utility. After processing, supply is from a 20-million-gallon clear well and then from the Crescent Hill reservoir having a capacity of 30 million gallons.

Distribution piping serves the entire metropolitan area which includes the Health Sciences Center. The piping system serving this area is a loop system of cast iron water mains ranging in size from 6 inches to 20 inches.

Ample pressure has been maintained for both domestic and fire protection requirements. Pressure normally exceeds 70 psi at street level and has been recorded as high as 85 psi. This pressure is sufficient to supply most facilities without the use of pressure pumps.

It is believed that the existing distribution system is ample to supply both domestic and fire protection systems for the present Health Sciences Center facilities as well as future facilities planned by the University.

proposed

General

All recommendations regarding mechanical and electrical "utilities" are based on the location, size and quantity of buildings as projected in the Comprehensive Facilities Development Plan. It must be recognized that any deviations from this plan would affect these utilities and service capacities. Therefore, it is important that the mechanical and electrical plans and data sheets be checked and up-dated with any deviation from the Comprehensive Facilities Development Plan.

The cost of distribution tunnels and piping is borne by the Health Sciences Center. After construction, the Medical Center Power Plant assumes responsibility for the maintainance of tunnels and distribution piping.

The carrying charges on the capital cost of additional equipment and expansion of the power plant is shared by all agencies and institutions using the Power Plant in proportion to the amount of steam and chilled water used by each.

Water

The University should provide domestic and fire services from the Louisville Water Company mains located in adjacent rights-of-way. A minimum of two domestic services should be provided to the Concentrated Care Building. Considerations should be made to reroute or abandon the water main located in (closed) Madison Street between Preston and Jackson Streets.

Utilities

existing

Sewers

The sewer system is owned and operated by the Metropolitan Sewer District. The sewers carry waste to a sewage treatment plant and then to the Ohio River. The Metropolitan Sewer District's system serving the Health Sciences Center is a conglomerate of systems-storm, sanitary and combination, all of which have undergone continuous changes or replacement in recent years. These sewers are being changed or replaced at the present time.

The distribution system owned and operated by the University is also a conglomerate of systems. The older sewers are normally combination storm and sanitary systems while facilities built within the past seven years are serviced by separate storm and sanitary sewer systems.

The Metropolitan Sewer District's distribution sewers in the Health Sciences Center range in size from 12 inches to 96 inches. The present system will be maintained and is adequate to handle both present facilities and future facilities.

It is anticipated that in the near future, in the interest of ecology, the Metropolitan Sewer District will require the separation of storm and sanitary sewers. This separation of sewers within the University's property would have to be accomplished at University expense.

Medical Gas

Medical gas systems required for the Health Sciences Center would include: oxygen, nitrogen and nitrous oxide. A 380-600 bed hospital would require medical gases in sufficient quantities to warrant exterior bulk storage sites.

proposed

Sewers

The University should provide separate storm and sanitary sewer connections to Metropolitan Sewer Districts sewers located in adjoining rights-of-way. The existing 18 inch sewer located in (closed) Madison Street between Preston and Jackson Streets should be abandoned.

Medical Gas

The University should provide bulk storage sites for oxygen, nitrous oxide and nitrogen for the ultimate load. The systems and manifolds should be sized with capacity to provide service through the Phase II Stage 2 programs. Distribution mains should be sized with sufficient capacity to provide service through Phase III.

Utilities

existing

Gas

The Louisville Gas and Electric Company is a private corporation under the control of the Public Service Commission. Gas is received from transmission lines of the Texas Gas Transmission Corp. Gas is distributed throughout the metropolitan area and to outlying areas.

The pressure in these underground distribution mains ranges from 4 ounces to 100 pounds. The distribution lines in the Health Sciences Center range in size from 4 inches to 16 inches. Since the Louisville Gas and Electric Company has a continuous maintenance program, the mains should have an indefinite life span. It is assumed that there is an adequate supply of natural gas to provide the demands of the present facilities.

Present regulations of the Louisville Gas and Electric Company, as approved by the Public Service Commission, do not allow the use of any additional gas.

Television

Provisions for closed-circuit, educational and commercial television have been included in some of the facilities owned and operated by the University. These systems are assumed to be adequate for present facilities. Present systems could be expanded and/or new systems provided for any future facilities to be constructed in the Health Sciences Center.

Telephone

Telephone service is provided by the South Central Bell Telephone Company. The central system and cable distribution system are satisfactory for the present facilities. The present system could be expanded or new systems provided to meet any future requirements.

proposed

Gas

Natural gas service should be provided to the Concentrated Care Building. (The gas load would have to be transferred from other university property or the present Louisville General Hospital before it is demolished).

Television

The University long-range program envisions expanded cable service to all buildings and to all instructional rooms. This service will provide terminals accepting color television studios on Belknap Campus. Plans also predict expansion of the instructional television system to interconnect to other networks such as Kentucky Educational Television, the Indiana Higher Education Telecommunications System, etc. This system will also have compatibility with local cable television systems. For fast, reliable and discreet exchange of digital information, a fixed service return link capability will be required.

Utilities

existing

Electric Power

Electric power is distributed by the Louisville Gas and Electric Company to metropolitan Louisville and outlying areas. The company is under control of the Public Service Commission.

Most of the Health Sciences Center is served by 12.8 KV primary distribution lines. Secondary service is 480/277 volt or 120/208 volt.

There is ample electric service to provide for the present demands in the Health Sciences Center. Ample electric power is already available or will be made available for future facilities planned for the Health Sciences Center.

In the Health Sciences Center four buildings–Health Sciences, School of Medicine, School of Dentistry and the Library-Commons–are now served by a dual primary electric service from Louisville Gas and Electric Company circuits in Walnut Street. These facilities are connected to one meter.

Facilities served from separate secondary services and individual meters are: the Medical/Dental Research, Lions Eye Research Institute, Radiation Center, Child Psychiatry Research Center, and the Medical/Dental Apartments.

Building "K" is served from the existing General Hospital utilities.

On-site standby or emergency power is required for the Ambulatory Care and Concentrated Care buildings. Emergency power requirements of other facilities may be served by automatic transfer arrangement in the double-ended substations.

Emergency service or power in buildings other than the Ambulatory and Concentrated Care buildings should consist of duplex service and double-ended substations. This type system is served by two separate utility company high-voltage circuits. Should one circuit fail, the system is automatically transferred to the remaining energized service. Should a fault occur in a service cable or transformer, the load would also be transferred from one service to the other in the double-ended substations.

proposed

Electric Power

The Health Sciences Center should extend the electrical distribution system to include all facilities proposed under the Comprehensive Facilities Development Plan.

The primary distribution system should provide sufficient capacity for the full program. The distribution system should not only have capacity for the present program but should include extra capacity for future expansion.

Dual primary feeders with selection at the transformers to protect against cable outages should be provided.

Double-ended substations with tie-switches to protect against transformer outages should be provided.

Two (2) 600- KW emergency power-generators to provide for the Concentrated Care Building should be installed. One 600 – KW emergency power generator for the Ambulatory-Care Building should be provided.

A third six-hundred KW generator in the Concentrated Care Building and a second 600 – KW generator for the Ambulatory Care Building should be added when these facilities are enlarged.

A duplex electric service and automatic transfer arrangement with double-ended unit substations for all facilities (except the Ambulatory Care and Concentrated Care Buildings) should be installed. The Ambulatory Care and Concentrated Care are to be provided with emergency power generators.

Emergency power requirements of the Ambulatory Care Building is estimated at 406 KW through Phase II and 610 KW through Phase III.

Based on information provided, the installation of two (2) 600-KW emergency power generators should be provided in the Concentrated Care Building and one (1) 600-KW generator for the Ambulatory Care Building under Phase II Stage 1 construction. Another 600-KW generator should be added to each building during future construction.

Utilities

existing

Steam and Chilled Water Plant

The University of Louisville Health Sciences Center is presently under contract to purchase steam and chilled water from the Medical Center Steam and Chilled Water Plant (sometimes referred to as Medical Center Power Plant). This contract would be binding for both the existing Health Sciences Center facilities and additional facilities constructed in the Health Sciences Center Area.

The existing Medical Center Power Plant is located on the north side of Abraham Flexner Way and west of Floyd Street. The plant has been operating successfully for over 18 years. During this time the plant has provided continuous and adequate steam supply to the Health Sciences Center and other institutions in the Medical Center. Continuous and adequate chilled-water service has been provided to the majority of these facilities for approximately nine years.

Existing Steam Plant Capacity

The Medical Center Power Plant has five boilers with a total capacity of 255,000 pounds of steam per hour. With one boiler out of service the plant could produce 180,000 pounds of steam per hour with coal fuel and 110,000 pounds using gas fuel.

Existing Chilled Water Plant Capacity

The power plant has a capacity of 9,000 tons of refrigeration which is sufficient to serve the existing Medical Center and the Health Sciences Center facilities. There is space in the plant to install additional capacity approaching 4,000 tons. This additional capacity should be sufficient to provide for the Health Sciences Center requirements through the Phase II Stage 1 programs.

proposed

Steam and Chilled Water Plant

The Health Sciences Center should purchase steam and chilled water from the Medical Center Power Plant. Distribution tunnels with sufficient capacity to extend steam and chilled water service to facilities through Phase III and future projects should be constructed. The tunnel routing should be as indicated on the Comprehensive Facilities Development Plans.

Considering approximate tunnel and land cost the Health Sciences Center should realize a construction cost savings in excess of $9,000,000 by utilizing the present power plant facilities. In addition to the construction cost savings, the Health Sciences Center should realize a substantial annual savings in operating and maintenance costs.

Steam Plant Capacity

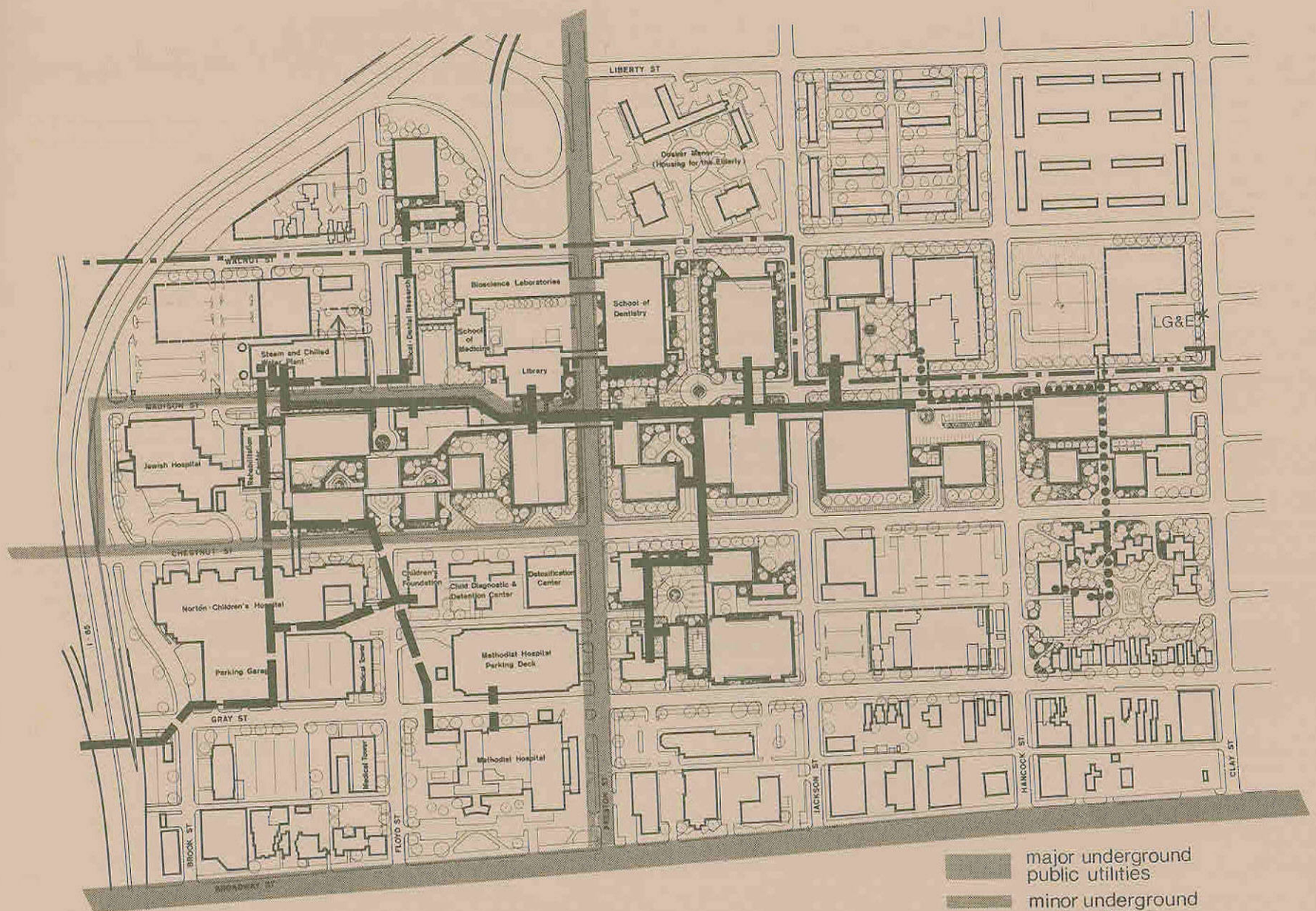
Calculated loads indicate that additional steam capacity would be required during Phase II Stage 2 and Phase III programs.

There is space in the present power plant for two additional boilers (each with a capacity approaching 100,000 pounds of steam per hour). The additional boiler capacity should be adequate to service the Medical Center, Health Sciences Center and the anticipated Health Sciences Center expansion through Phase III.

Chilled Water Capacity

Prior to Phase II Stage 2 Health Sciences Center expansion, it will be necessary to enlarge the chilled water plant. The addition should be of sufficient size to allow the installation of refrigeration equipment with a capacity approaching 12,000 tons, even though the equipment would be added as needed during the several different phases of the expansion program.

Utilities



*LG&E electric substation

University of Louisville · Health Sciences Center

Long Range Development Plan

Statistical Summary

Long Range Development Plan

Facilities

Existing	796,276 gsf
Proposed	2,191,000 gsf
Total	2,987,276 gsf

Housing

Existing (apts)	81,450 gsf
Proposed (apts)	313,200 gsf
Total	394,650 gsf

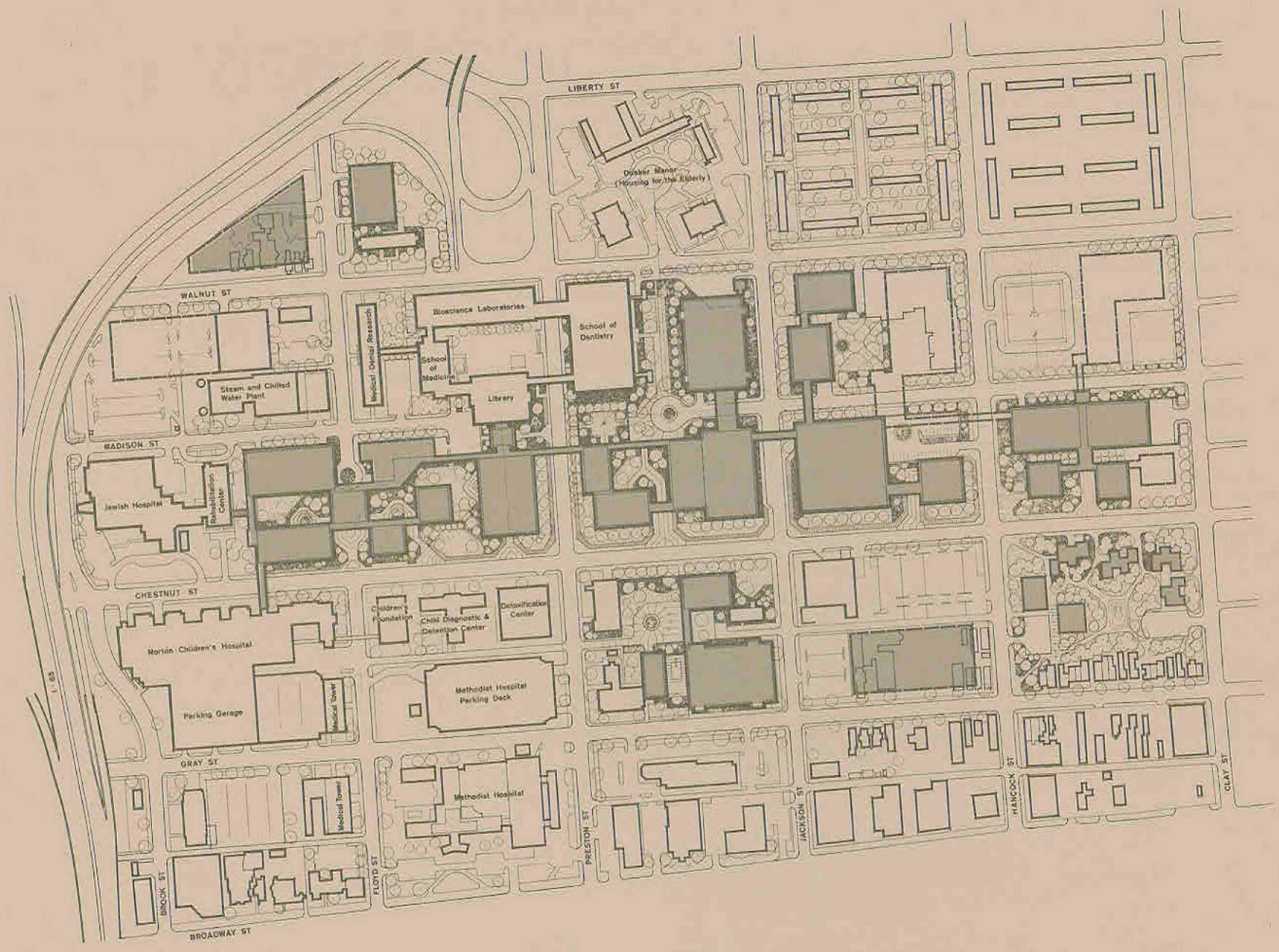
Parking

Existing	1,748 spaces
Proposed	3,290 spaces
Total	5,038 spaces

Campus Acreage (University Property)

Existing	35.4 acres
Proposed	22.5 acres
Total	57.9 acres

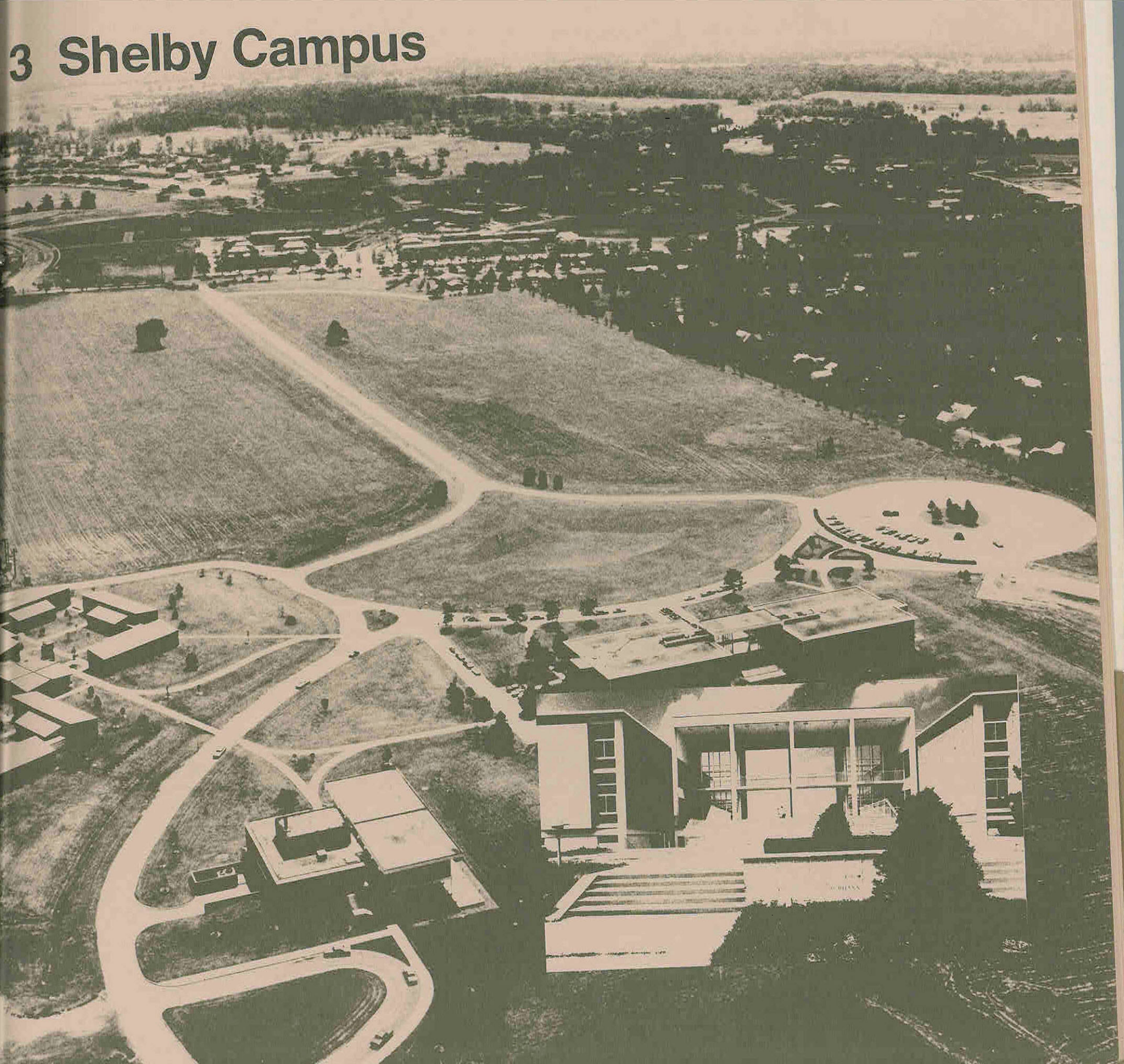
Summary Plan



Long Range Development Plan

University of Louisville · Health Sciences Center

3 Shelby Campus



Cluster Development

The relatively undeveloped Shelby Campus offers many opportunities for development as a site for cluster colleges or cluster institutes.

The scheme illustrated on the following page suggests a new entrance boulevard from the Hurstbourne Lane extension. The north entry from Whipps Mill Road should be improved to a boulevard entrance. The existing entry from Shelbyville Road can be retained until the fourth cluster is constructed.

The southern portion of the campus, along Shelbyville Road, could be sold or leased to private developers for commercial or office building use.

Four academic clusters are proposed. Approximately 3,000 cars can be parked in surface lots. Additional parking can be introduced along the ring road but is not included in the total. Open space and athletic areas are located in the northern and eastern portion of the campus. These areas are not suitable for major construction due both to poor subsurface conditions and being in the flood plain areas of Beargrass Creek.

Shelby Campus development could serve to reduce the total academic, housing, parking and athletic space load projected for the Belknap Campus. (This would add a degree of flexibility in the continued development of Belknap Campus). Shelby Campus may also develop as a community-oriented campus serving many of the adult education and continuing education needs of the county.

Although academic programs for Shelby Campus have not been finalized, the capacity of the campus can be evaluated. The development shown on the following diagrams can house approximately 8,570 full-time equivalent students (11,900 headcount) in three-story academic facilities and four- to six-story housing units.

As academic programs are developed the physical planning programs will require further evaluation with regard to parking policy and athletic space requirements.

A steam and chilled water plant is recommended if expansion occurs within a relatively short time interval. However, full development of the campus may be as much as 10 to 20 years away.

The Zones

Cluster 1—Academic/Housing—is situated at the end of the proposed entrance boulevard and next to a major parking area and the athletic facilities to the north. Cluster 1 contains 430,650 g s f of academic space, 107,700 g s f (538 beds) for housing. It also includes the existing Student Union Building 36,147 g s f for a total of 430,650 g s f–projected capacity is 2,266 F T E students.

Cluster 2—Academic/Housing—is made up of new structures. It includes 345,400 g s f of academic space and 139,000 g s f (695 beds) of housing. The projected capacity is 1,817 F T E students.

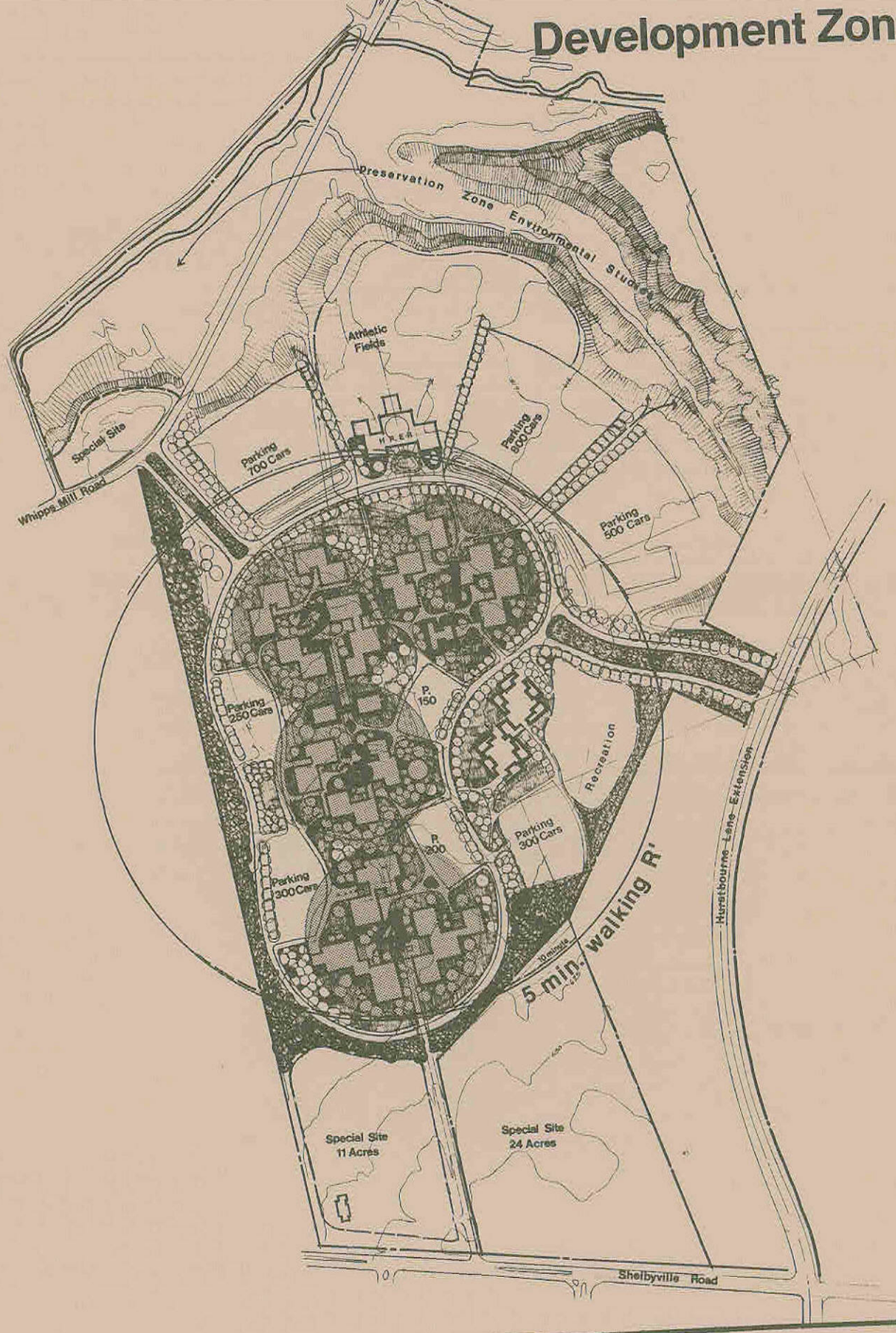
Cluster 3 is envisioned as a Community College cluster containing 345,400 g s f and includes the existing Administration Building of 73,661 g s f The cluster's central location will permit close interaction with both Academic/Housing clusters and the Center for Continuing Education. Cluster 3 can be developed earlier than the others in that much of the existing road pattern, parking and existing entrance from Shelbyville Road can be retained. Immediately west of this cluster is the proposed Steam and Chilled Water Plant, another important element in the early development of the campus. From this central cluster the other clusters, roads and parking can develop. The capacity of this cluster is 1,915 F T E students.

Cluster 4 can be developed as a Center for Continuing Education containing 488,600 g s f with adjacent parking for 600 cars. The capacity of this cluster is 2,571 F T E students.

Existing Housing Cluster. The School of Music now occupies structures originally used for dormitories. When the school is relocated to Belknap Campus, these facilities, after renovation, can once again be used for housing. (Approximately 1,500 students could be housed on campus.)

All clusters fall within a five-minute walking radius.

Development Zones



Long Range Optimum Plan

University of Louisville · Shelby Campus

Entry Points

The major entrances to the campus will be from the northwest corner and from the south in the early stages of development. As Hurstbourne Lane is extended along the east of the campus a new entrance will be established. Within the area defined by the ring road, all vehicular traffic routes are limited to penetration loop at surface parking areas, thus eliminating any traffic through the core area or cluster campuses.

Parking

Parking access is from the ring road. Parking areas adjacent to the four campus zones are for faculty, staff and visitors. Major parking areas on the northeast will provide for commuter students, dormitory residents and married students living on campus. Most of the parking areas are within a four-minute walk from the center of the individual clusters.

Parking areas are to be screened with planted earth mounds to reduce their visual impact on the campus environment. The eight surface parking zones will park 3,300 cars. Additional overflow parking can be accommodated along the ring road when athletic or auditorium events require.

Walkways

The entire system of pedestrian ways linking the four academic clusters falls within a five-minute walking radius. Walkways adjacent to the ring road tie the walk pattern together and permit easy pedestrian access from perimeter parking lots. Detailed design of the walkways should allow for vehicular use such as that required for emergency and University security. All other vehicular service and parking should be from the ring road.

Open Space

Approximately 20 acres of land will be developed for athletic and recreation uses. Due to poor subsurface conditions on the north and east sides of the campus, major construction is not recommended. Beargrass Creek, a natural drainage way subject to periodic flooding, runs through this zone. This area can be set aside for use as an environmental studies zone that could relate to educational programs.

The remainder of the 239-acre site is generally available for construction, although subsurface investigation is recommended for any future structure.

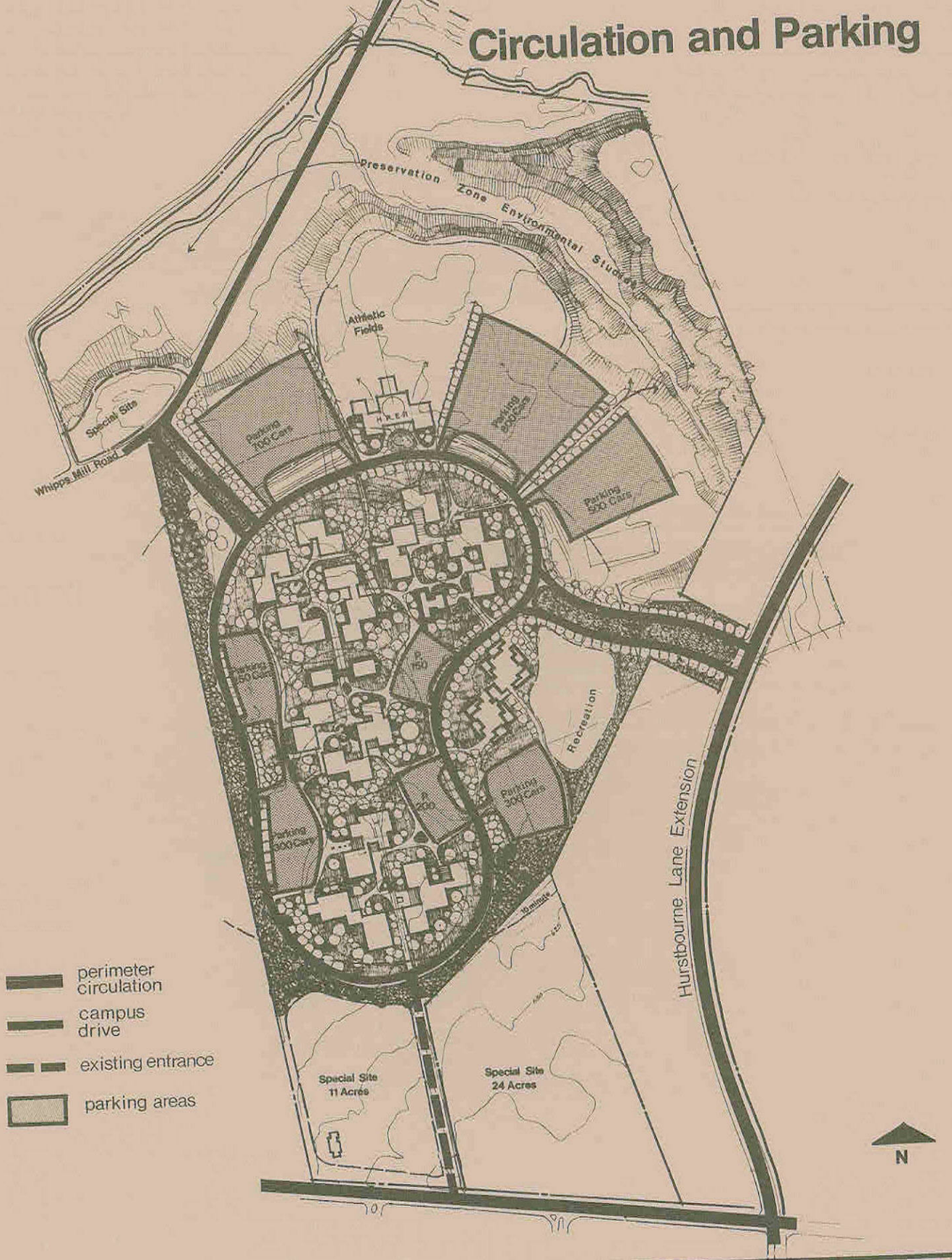
A 24-acre site adjacent to Shelbyville Road has been identified as a special site that could be made a part of a future commercial zone.

An additional 11-acre site that includes the president's home property is also set aside as a potential residential zone.

Landscape

Set-back or buffer zones 75 to 100 feet wide should be developed as natural wooded buffers paralleling property lines. Plant buffers to screen adjacent residential areas and commercial zones should be developed. Earth mounds should be established to screen the large open parking lots and building service areas. The wooded buffer zones and green athletic and environmental studies zones will continue to contribute to the open space fabric of the surrounding community.

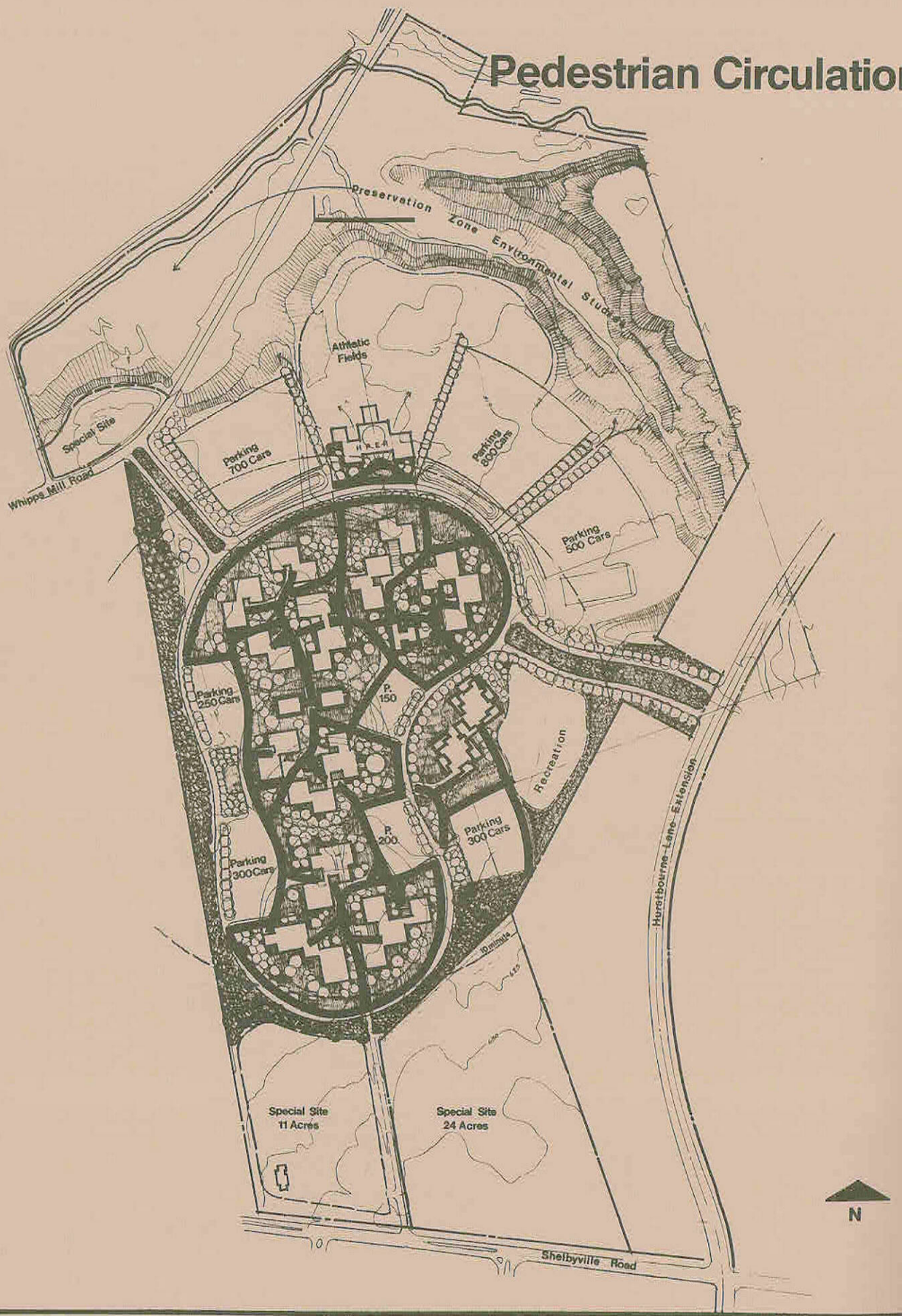
Circulation and Parking



Long Range Optimum Plan

University of Louisville · Shelby Campus

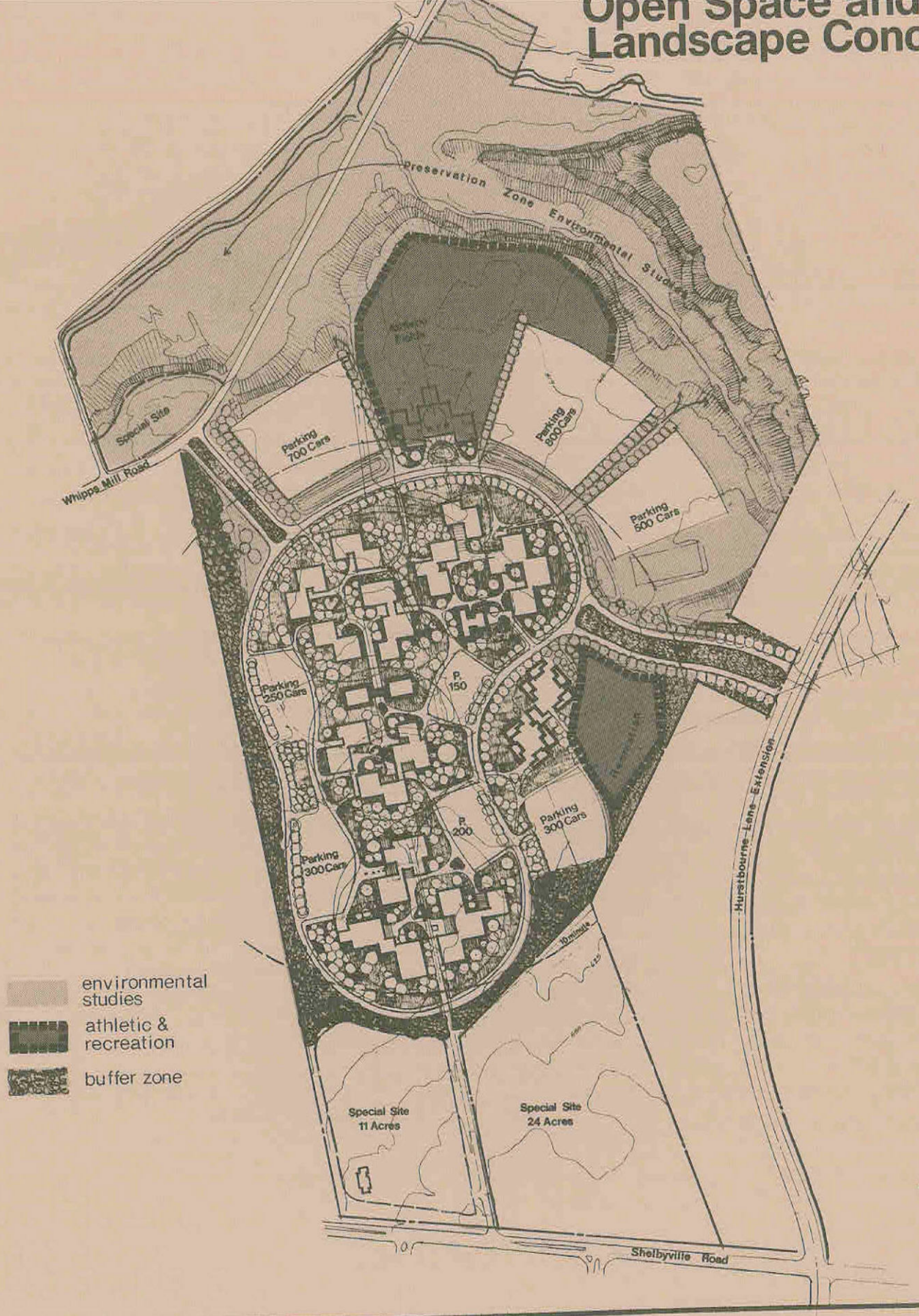
Pedestrian Circulation



University of Louisville · Shelby Campus

Long Range Optimum Plan

Open Space and Landscape Concept



Utilities

existing

General

The existing campus is presently served with water, sanitary sewers, storm sewers, gas, electricity, television and telephone systems. Individual buildings and building clusters have their own heating and air-conditioning systems.

The utility data was compiled from information provided by the University, original construction data, maintenance records and utility company maps. Recommendations are based on this data and the proposed expansion program provided by the planners.

Recommendations are based on the proposed campus development plan presented, existing facilities data and use and availability of fuels. A major factor considered in making these recommendations was the construction time span for the total expansion of campus facilities to approximately 1,800,000 g s f.

Water

The water system supplying the campus is owned and operated by the Louisville Water Company, a city-owned utility. Adequate supply and pressure is normally maintained. Pressure at street level in this area normally exceeds 60 pounds per square inches.

Even though the University's mains range from 4 inches to 10 inches, it is doubtful that more than two fire hydrants could be operated effectively at one time. This is especially true since the majority of the campus's domestic water and all of the fire protection mains are supplied through one 6 inch meter.

The present maximum domestic water demand for the campus has been estimated at 100 gallons per minute with an average daily consumption of 20,000 gallons. The water supply, including fire protection, for the entire campus is metered at four locations. Only one system is estimated to be adequate for nominal fire protection standards.

The present domestic water system is of sufficient capacity to provide for the present facilities and considerable expansions, but careful study of both the domestic and fire protection systems should be made prior to the initiation of any campus expansion.

proposed

General

The existing utilities are adequate to serve the present facilities and they can, by extensions and additions, be made to serve an enlarged campus but are not adequate to serve the complete proposed expansion program. A careful study must be made of all utilities prior to the start of any development program. This study should include a projected time development program to ensure the most practical and economical means of providing for the needs of the campus.

The program, as presented, can establish only probable areas of campus growth. The need for expansion or development of major utilities must be studied and re-evaluated constantly. This is especially true of the major mechanical and electrical (heating-cooling-electric power) systems.

Water

Present domestic and fire protection systems may be adequate but tests should be made prior to the start of any expansion program in order to determine the adequacy of the fire protection system.

Should expansion progress in a short period of time (10 or 20 years) as planned, the water system should be changed to a positive fire protection system with separate domestic meters for buildings and clusters. A loop system is recommended. It could be owned by the University or owned and operated by the Louisville Water Company. Easements would have to be provided for the installation of these mains if they are to be owned and operated by the Louisville Water Company.

Utilities

existing

Sewers

The present sewer systems are owned and operated by the University. These are separate storm and sanitary sewer systems.

Storm Sewers

Storm water is collected from the buildings and the surrounding areas and carried to natural drainage ditches. The system is adequate to care for the present facilities.

Sanitary Sewers

The sanitary sewage system is more than adequate to serve the present campus. The 12-inch sewer line is large enough to serve the existing complex and considerable additions. A public sewer system was not available when the existing campus was constructed. The University presently owns and operates its own sewage treatment plant. The effluent from this plant is discharged into the north fork of Beargrass Creek.

The Metropolitan Sewer District of Louisville has recently constructed a 33-inch sanitary sewer along the northeast boundaries of the campus.

Gas

The Louisville Gas and Electric Company, which is regulated by the Kentucky Public Service Commission, distributes natural gas to the campus. The campus is served from an 8-inch medium pressure main located in Shelbyville Road. Distribution is by the University's lines to individual buildings and building clusters. Although there is some question about the future availability of natural gas, there will be an adequate supply to provide for the present needs of the campus with oil as an auxiliary fuel.

Additional gas service is not available. Additional gas is not likely to be available in the future. At the present time there are regulations permitting a customer to transfer gas loads from one location to another. This may be considered by the University prior to the initiation of an expansion program.

proposed

Sewers

Storm and sanitary sewers are owned and operated by the University and are adequate to serve the present facilities.

Storm Sewers

Storm sewers are adequate. Additional storm sewers should be provided for proposed facilities, parking areas, etc., but consideration must be given to governing agencies and their regulations, such as retention, as it relates to flood control.

Sanitary Sewers

Although the present system is adequate, it is advisable to abandon the present sewage treatment plant and extend the sanitary sewer to the newly constructed Metropolitan Sewer District public sewer installation. Consideration must be given to the proposed expansion program prior to sewer construction.

Gas

Additional natural gas is not available. Under the present regulation, abandoned gas demands can be transferred to another location. Should the proposed expansion progress as planned, the present gas supply should be transferred to a central heating and chilled water plant. When the University abandons any gas services at other locations, it may be possible to transfer this gas to the campus of its choice.

Utilities

existing

Electrical

Electricity is provided by the Louisville Gas and Electric Company, which is regulated by the Kentucky Public Service Commission. Primary electric supply to the campus is a 12,470/7200-volt distribution system. The secondary supply is a 480/277-volt or 120/208-volt system.

There is ample power available to serve the present needs of the campus, but with the planned expansion, additional service will have to be provided.

Present buildings are now served by an overhead pole line along the southwest property line to a primary metering station. The primary voltage characteristic is 12-KV grounded wye system.

An underground duct system and high-voltage cable extends from the metering station to the transformer substations in the buildings.

Electrical Demand Estimates

Estimates of electrical demand are based on the existing and proposed buildings.

By allowing for a 25 % increase in electrical energy demand over the next 10 years, the demand would be 1,054 KW for the existing buildings.

The proposed expansion program, with the heating and chilled water plant serving all buildings, will add 13,135 KW for a total demand of approximately 14,180 KW. This does not include electric space heating. If the proposed buildings were provided with electric space heating plus electric heating of domestic water, the demand would add another 13,174 KW for a total of 27,354 KW.

Incoming service is limited to 10,000 KW per circuit. The planned development will require two incoming circuits without electric heating and three incoming circuits with electric heating. All metering should be at one location so the meters can be totalized.

proposed

Electrical

Under the Comprehensive Facilities Development plan, primary electrical distribution should be provided to serve all buildings, existing and proposed. The main distribution system should have capacity for further growth.

Dual primary circuits should be extended to each transformer substation and each substation with primary circuit selection to protect against cable failures.

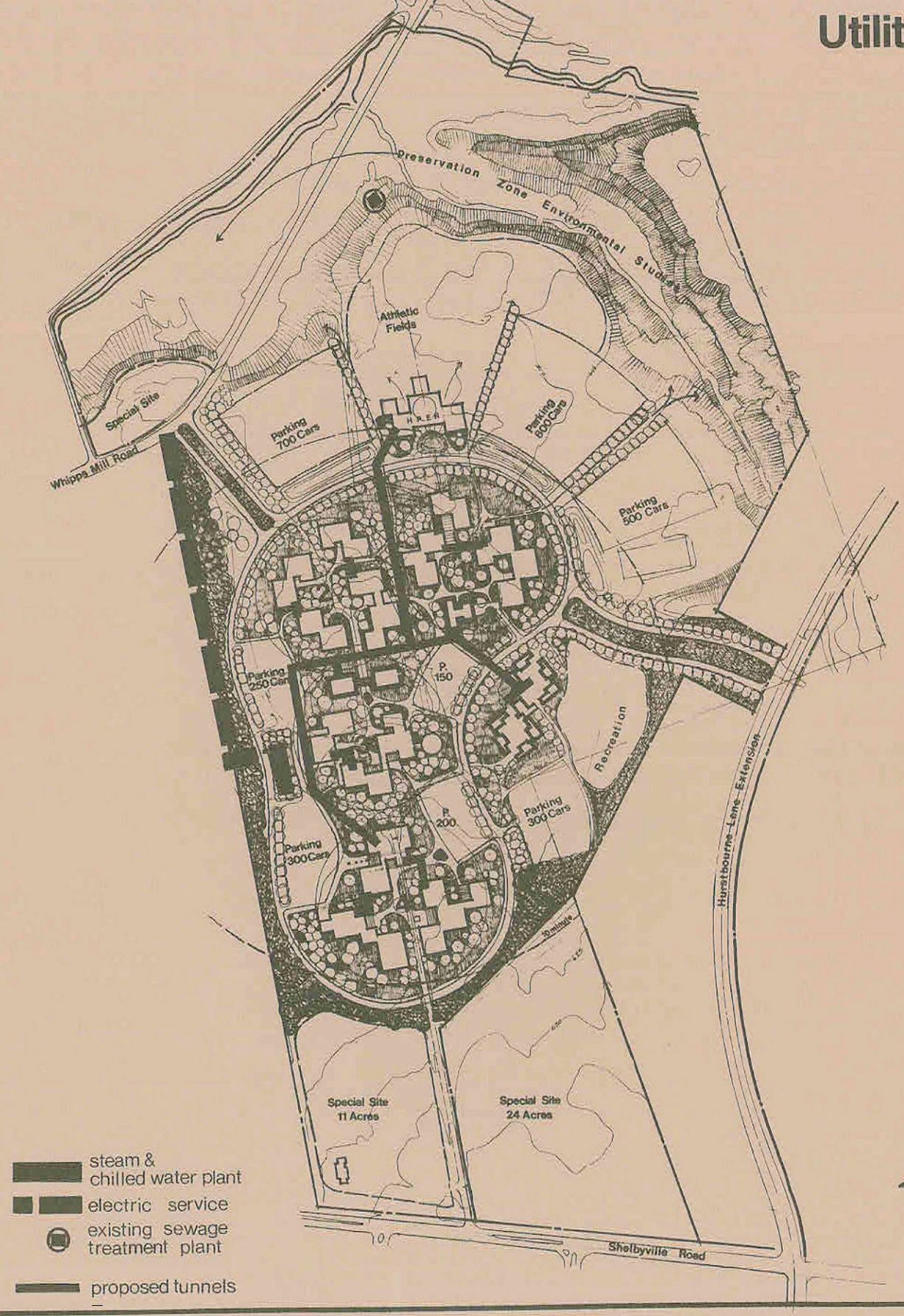
Substations should be of a double-ended design provided with secondary tie-switches to protect against transformer failures.

Arrangements should be made to theutomatically transfer essential loads from an outage to the live end of a substation. Also, a battery-powered emergency lighting and evacuation alarm system should be provided in the event of a complete electrical failure. At the present time, an emergency lighting and evacuation alarm is a code requirement.

Should the building design, occupancy and owner require, engine-driven generators could be provided to serve emergency and essential loads. However, the duplex service arrangement with automatic transfer and battery-powered back-up systems will satisfy building codes and safety requirements.

The main existing overhead service entrance along the east property line should be abandoned and a new overhead service entrance be provided. The new service would enter the property at the northwest corner at Whipps-Mill Road and extend along the west property line to the proposed central power plant. Metering and high-voltage switchgear would be located in the Central Power Plant.

Utilities


Preservation Zone Environmental Studies
Athletic Fields
Special Site
Whipps Mill Road
Parking 700 Cars
H.R.E.A.
Parking 800 Cars
Parking 500 Cars
Parking 250 Cars
P 150
P 200
Parking 300 Cars
Parking 300 Cars
Recreation
Hurstbourne Lane Extension
Special Site 11 Acres
Special Site 24 Acres
Shelbyville Road
N
steam & chilled water plant
electric service
existing sewage treatment plant
proposed tunnels

Utilities

existing

Television

Commercial television is available from local stations. There are no closed-circuit or special educational television systems available at present.

Telephone

Telephone service is provided by the South Central Bell Telephone Company. The present system is adequate but modifications will have to be made in the telephone system prior to the completion of the expansion program. A complete study and evaluation should be made prior to the start of any expansion.

Telephone service enters the property through a manhole along the west property line. Service cables are extended to a switchboard in the Administration Building through an underground duct system. Branch circuits are also extended from the switchboard to other buildings through the underground duct system.

Fuels

At the present market value of fuels, the heating systems now being used are the most economical. Should the campus expansion program be smaller or progress much slower than proposed, it is possible that the present type of systems and fuels can be utilized, although additional gas will no longer be available.

Should the growth of the campus progress as planned, a central plant using coal and oil (gas, if available) would be the most economical.

proposed

Television

The University long-range program envisions expanded cable service to all buildings and to all instructional rooms. This service will provide terminals accepting color television studios on Belknap Campus. Plans also predict expansion of the instructional television system to interconnect to other networks such as Kentucky Educational Television, the Indiana Higher Education Telecommunications System, etc. This system will also have compatibility with local cable television systems. For fast, reliable and discreet exchange of digital information, a fixed service return link capability will be required.

Telephone

Telephone service is adequate for the existing facilities, but it should be expanded or changed to meet the future needs of the campus.

Fuels

Fuels are proper and adequate for the present campus facilities.

It is impossible, without definite programs and timing schedule, to predict the proper and most economical fuels. An analysis must be made periodically to assure the proper selection of fuels. At present, it seems logical to select coal and oil for the central system supplying a large expansion program and oil or electricity for a small or slower program of expansion. The slower program (over 25 years or more) could dictate the use of individual heating and cooling systems rather than a central plant.

Utilities

existing

Heating and Cooling

The existing campus facilities are heated, individually and in clusters, by gas and oil fired boilers. Air-conditioning is provided by electric motor driven equipment. These systems are adequate to care for the needs of the present facilities.

Careful considerations should be given to the timing of the proposed expansion program. This amounts to campus facilities approximately 10 times larger than present facilities. A study should be made in order to determine if it is practical and economical to continue with the present individual heating and cooling systems or to provide a new central Steam and Chilled Water Plant. The decision will be governed by the relative cost of fuels at the time of any expansion as well as the time to complete expansion.

proposed

Heating and Cooling

The existing systems are adequate for the campus facilities.

Should the expansion of facilities proceed as planned, a Central Heating and Chilled Water Plant should be constructed with the first phase of the campus expansion program. The plant should be arranged so that it can be extended to provide for both the existing facilities and all facilities included in the expansion program.

A plant to house heating and cooling equipment would occupy an area approximately 100 feet by 225 feet.

Three boilers, each with a capacity of approximately 45,000,000 BTU per hour, would be required. This would allow one boiler to be out of service and still have plant capacity to provide for the needs of the entire campus as proposed.

Six refrigeration machines, each with a capacity of approximately 1,000 tons, would be required to supply the needs of the total campus. This would allow for at least one chiller to be out of service and still provide for the major needs of campus facilities.

The distribution system for steam and chilled water would be through a series of underground tunnels. The tunnels would extend from the power plant to the individual buildings or building clusters and would include service to existing facilities.

Statistical Summary

Long Range Optimum Plan

Academic

Existing	128,783 gsf
Proposed	1,415,040 gsf
Total	1,543,823 gsf

Housing

Reuse of housing units (now used for academic space) and new housing	
Total	1,500 beds / 301,872 gsf

Parking

Existing	548 spaces
Proposed	2,752 spaces
Total	3,300 spaces

Athletic Acreage

Existing	undefined
Proposed	18 acres
Total	18 acres

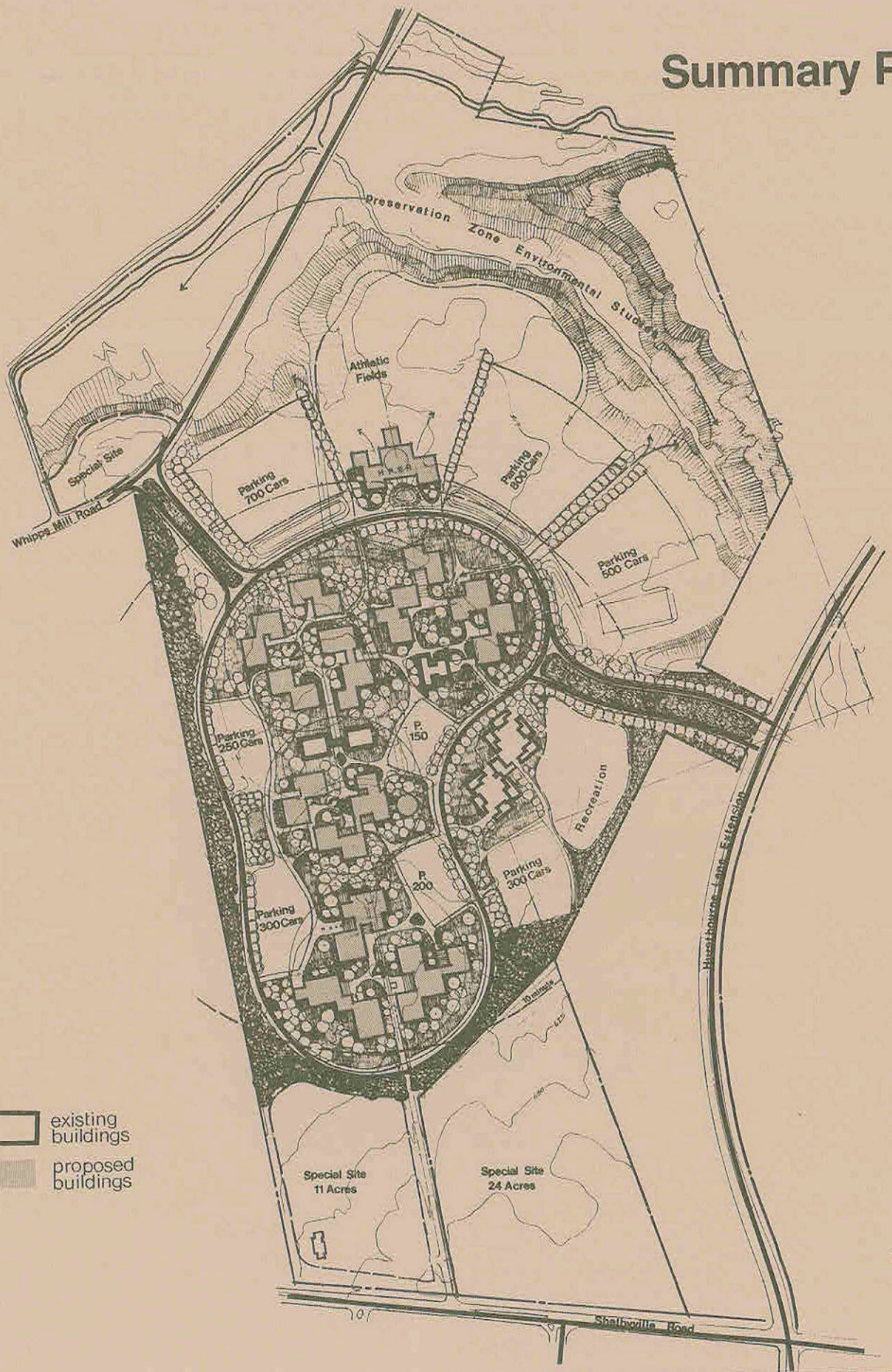
Athletic Education Spaces

Existing	none
Proposed	94,150 gsf
Total	94,150 gsf

Acreage

Existing	243 acres
Proposed (loss)	4 acres
Total	239 acres

Summary Plan



University of Louisville · **Shelby Campus**

Long Range Optimum Plan

Credits

Ryan, Cooke & Zuern Associates, Inc.
Architects and Planners
Louisville, Kentucky

Johnson, Johnson & Roy, Inc.
Campus Planners/Landscape Architects
Ann Arbor, Michigan

E. R. Ronald and Associates
Consulting Engineers/Utilities
Louisville, Kentucky

Milton M. Greenbaum and Associates
Consulting Engineers/Subsurface
Louisville, Kentucky

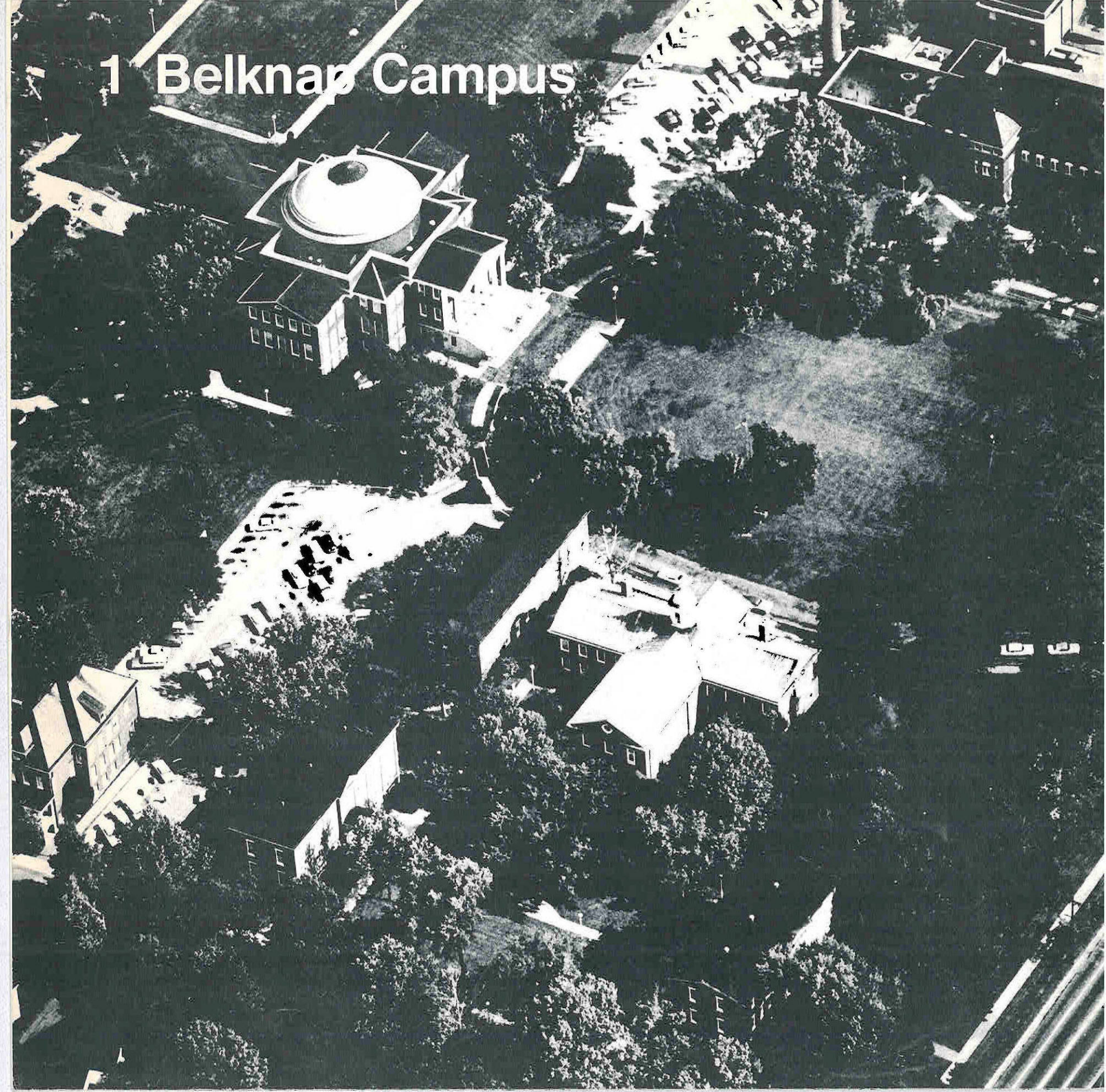
Brochure Design:

Johnson, Johnson & Roy, Inc.
Ryan, Cooke & Zuern Associates, Inc.

Printer:

Pinaire Lithographing Corporation
Louisville, Kentucky

1 Belknap Campus



Development Phases

The proposed expansion and development of Belknap Campus is delineated in three plans: the Immediate Plan, the Interim Plan and the Long Range Optimum Plan.

Previous progress reports have determined the need to acquire additional property surrounding the campus. The major portion of land acquisition will be to the east of the present campus. Some acquisition to the south is programmed in the Long Range Plan and three additional parcels are to be acquired to the west of the present campus boundaries.

The immediate needs of the University dictate acquisition of land for a steam and chilled water plant, necessary to any further physical expansion. Additional land is also needed to increase the parking capability. Eventually this land will be developed for academic needs. The Immediate Plan phase will include the initial buildings of three major academic clusters as well as the construction of a new library and learning resource center.

The Interim Plan phase will continue expansion of two of the three clusters and the expansion of the Library. Also included is the first segment of the University Loop or interior services route that is to be completed in the Long Range Plan phase.

The Long Range Optimum Plan delineates the future expansion of facilities beyond 1980. The sharp enrollment increases, currently experienced by the University, will require rapid development if the goal of accommodating a 25,000 headcount is to be achieved by 1985.

The Long Range Plan may serve only as a general framework for expansion for the next 25 years. It is important to adjust the plan as additional University programs and priorities are defined.

The Immediate Plan

Land acquisition is a primary consideration in the Immediate Plan for campus extension. Acquisition of 39.51 acres surrounding the present campus (west, south and east edges) will allow additional land for athletics, parking and the new steam and chilled water plant.

The total acreage of the campus will increase from 116.7 acres to approximately 156.2 acres if proposed acquisition is accomplished.

Construction totaling 576,000 gross square feet is proposed in four development zones as well as a new library- learning resources center on the west edge of the Central Quadrangle.

The north entrance from Avery will be expanded to a tree-lined entrance boulevard. The western portion of Brandeis Street will be removed to a point near the service road west of Strickler Hall. Landscaped surface parking lots will be developed adjacent to the proposed School of Music and the proposed School of Education.

Parking is an issue that will depend greatly on fuel availability, fuel costs, public transportation, and the University parking policy. The Immediate Plan indicates a total parking capacity of 4,908 spaces in surface lots—1,805 of these spaces would be provided on newly acquired land east of the present campus boundaries. Buildings on the newly acquired lands could remain. If they are removed, additional parking can be accommodated. Specific parking layouts will be required to determine the actual capacity of this property.

The 10.5-acre athletic area will be expanded to 19.52 acres.

The Interim Plan

The Interim Plan calls for additional land acquisition of 6.70 acres, which includes recently developed commercial property along the north side of Warnock Street and a developed parcel southeast of the intersection of Floyd and Warnock Streets. This will increase the total campus acreage to 162.9 acres.

Additional buildings totalling 447,000 gross square feet are proposed in three development zones. Also included is an addition to the Library and Learning Resource Center constructed in the Immediate Plan Phase.

The Interim Plan also indicates the initial committment to a University Loop system by the elimination of thru-traffic (Brook Street) and construction of a portion of the "loop" extending Brandeis to the west edge of the present L & N Railroad right-of-way and running parallel to the right-of-way to Warnock Street.

Additional land acquisition in this phase will provide 750 additional parking spaces. Parking capacity will increase to 5,197 spaces assuming the use of newly acquired lands in the Immediate Plan phase.

Athletic space will remain at 19.5 acres until the Long Range Optimum Plan is developed. Then, approximately 12 acres will be added, bringing that total to 31.5 acres. As roadway rights-of-way are acquired, their areas can be added to athletic spaces. This will serve to amalgamate athletic acreage into a zone that will allow better land utilization.

The Long Range Optimum Plan

The Long Range Optimum Plan defines the physical expansion of Belknap Campus for the next 10 years and beyond. It is a diagram of existing and proposed facilities and movement systems and does not project exact quantities or configurations. As student enrollment increases, funding becomes available and academic goals are finalized, this plan will undergo re-evaluation. Facility priorities will have a major effect upon the implementation of the plan. The feasibility of removal and relocation of traffic constraints such as Third Street, the Second Street connector, Brook Street, Floyd Street, Eastern Parkway and the north-south line of the Louisville-Nashville Railroad will have profound effects upon land utilization, campus circulation and community traffic flow. Each of these proposed removals and relocations require thorough feasibility studies whose recommendations, scheduling and funding will affect the implementation of the Long Range Plan.

The acquisition of approximately 11 acres of land in this phase will increase the total campus acreage to approximately 174 acres.

The Long Range Plan phase will include the addition of 1,985,000 gross square feet of building space; 1,330,000 gsf will be academic space; 166,000 gsf will be housing; 143,000 gsf will be athletic spaces with the remainder devoted to administration and service areas. The athletic fields will be increased to approximately 37 acres.

Parking capacity will increase to 7,159 spaces of which 6,000 spaces will be in parking structures. The remaining spaces will be in surface lots throughout the campus.

Statistical Summary

Long Range Optimum Plan

Academic

Existing	1,532,000 gsf
To Be Removed	392,600 gsf
Balance	1,139,394 gsf
Total Required	3,420,000 gsf (190 gsf x FTE)
Proposed	2,280,000 gsf
Total	3,420,000 gsf

Housing

Existing	419,868 gsf/1,100 beds
Proposed	166,000 gsf/ 830 beds
Total	585,868 gsf/1,930 beds

Parking

Existing	3,800 spaces
Proposed	7,000 spaces

Athletic Acreage

Existing	10.5 acres
Proposed Total	37.0 acres (100 sf/FTE)

Athletic Education Spaces

Existing	75,920 gsf
To Be Removed	16,642 gsf
Balance	58,178 gsf
Proposed	82,000 gsf
Total	140,278 gsf

Campus Acreage

Existing	116.7 acres
Proposed	57.3 acres
Total	174.0 acres

Planning Guidelines & Constraints

Supplied with estimates of enrollment size for the different academic units, the architect-planner set about to develop a plan for facilities to accommodate the academic sector and various support services. To guide the planners and make some constraints explicit, the following information and instructions were provided by the University of Louisville:

- Enrollment should not be expected to exceed 25,000 students (headcount) at any time.
- Development of facilities for 25,000 students should be explored for (a) Belknap Campus if possible, (b) a combination of Belknap and Shelby Campuses and (c) Shelby Campus.
- A park-like campus of green spaces, tree-lined walks and quadrangles was to be maintained, with few buildings exceeding four stories. One or two high-rise buildings would be acceptable, but ground area coverage for buildings and parking facilities should not exceed 20 % coverage.
- The University should consider and acquire the property between I-65, (the North-South Expressway), and Fourth Street, and between Eastern Parkway and Avery. It should also acquire whatever property is available between the expressway and Brook Street north of Avery Street east of the Educational Park.
- The plan should not be constrained by existing barriers, but should envisage development that could occur if Third Street traffic were rerouted to Fourth Street, if Eastern Parkway were rerouted south of the Speed School, Brook Street were closed off, and the L and N Railroad were relocated to the east. Plans should be developed so that new facilities could be constructed and occupied before the above changes were made (and in case they were not made).
- It is likely that in most units the student/faculty-support staff ratio will decrease.
- A ratio of one parking space per 1.75 registered vehicles is reasonably acceptable. Approximately 50% of the students and 95% of faculty and staff are expected to register vehicles. Spaces should be provided in both surface and structured facilities.
- It is important and desirable for the University to assure that housing (University owned and operated, or private) be available on or off campus to students who desire it. It is anticipated that the proportion of students desiring it will remain the same or increase.
- The University contemplates a centrally located library facility with a hard cover collection which will reach 1.2 million volumes in 1984. No further increase in size is likely after that time.
- University policy calls for development of a Media/Communications Center to house administrative offices and production facilities for media and communication technology.
- The University's policy is to provide for men's and women's, academic athletic programs through the department of health, physical education, and recreation, an intramural athletics program, and an intercollegiate athletic program. While facility needs for these programs will have to be evaluated at a later date and priorities set via a consultative procedure, we believe University needs to be as follows:

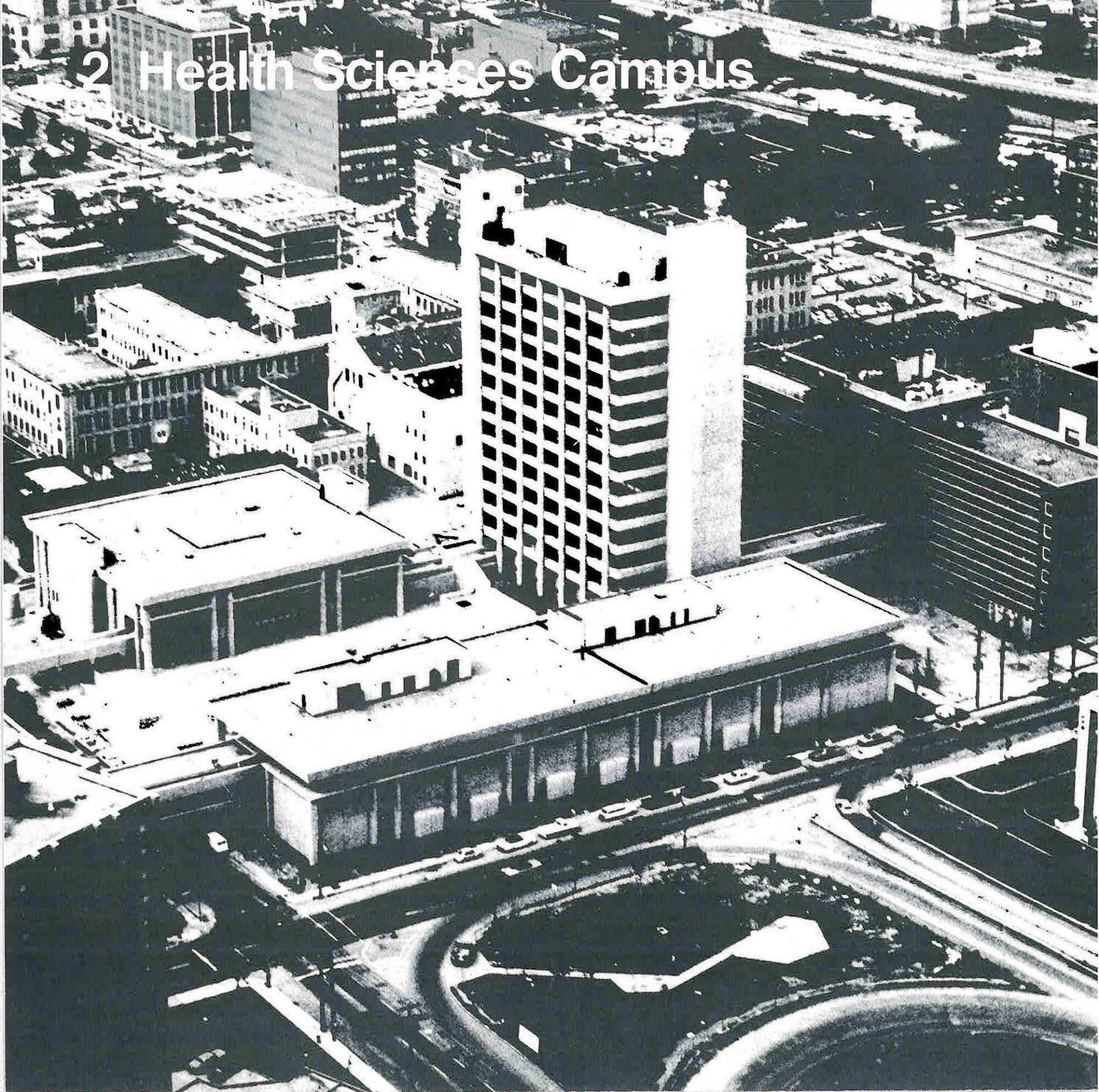
a. Academic and intramural programs immediately require additional outdoor space approximately the size of Parkway Field. Within 10 years the need is expected to quadruple.
b. An additional gymnasium for the academic program will be required within the next 10 years.
c. Varsity athletic programs for basketball and football are to continue to be housed, for the near future, at the Kentucky State Fairgrounds facilities, south of the campus.
d. Multipurpose outdoor recreation areas should be provided on campus to serve both housing and classroom areas.
e. A coed field house with adjacent practice fields for intercollegiate athletics is needed. The facility should provide indoor and outdoor space appropriate for the following intercollegiate sports: baseball, basketball, field hockey, football, softball, swimming and tennis.

University administration believes that:

a. The University must provide a variety of services, facilities, and activities to encourage students to remain on campus throughout day and evening. This should include game rooms, music rooms, a book and gift store, a drug store, and a barber shop, as well as a snack bar and places for study, visiting and extra-curricular activities. Dormitories should provide game and TV rooms.
b. Locker spaces should be available in classroom buildings or in major classroom zones.
c. Informal activities such as those provided in the Red Barn are likely to quadruple in the next 10 years. Suitable facilities for a variety of informal events should be planned.

Construction phasing in the immediate future will be decided by a responsible policy setting procedure. Since the existing steam and chilled water plant is operating at maximum capacity, any new construction will require construction of a new plant. A School of Music building and a learning resources building now have highest priority. (Because it may be possible for music and other performing arts to share auditoria and parking, the University proposes to develop an architectural program for the Music and Arts Complex.) Priorities for all other construction will be determined by appropriately informed faculty and administrative bodies.

2 Health Sciences Campus



Phase II, Stage 1

Accommodation of the educational programs of the Schools of Medicine and Dentistry in the Louisville General Hospital is no longer feasible. Therefore, the components of Phase II are intended to complement Phase I construction and to meet the clinical educational commitments imposed by the University's expanded objectives.

In addition, Phase II, Stage 1 components will replace the obsolete Louisville General Hospital with a University teaching facility which more appropriately reflects the aspirations of the University, the community and the region it serves. The four major objectives of Phase II, Stage 1 are as follows:

1. To provide a principal teaching hospital for the University of Louisville Health Sciences Center.

2. To provide an emergency and acute care center for the geographical area.

3. To provide a primary health care facility for members of the community who are unable to pay for health services.

4. To function as the core unit for a regionalized health care delivery system for the western half of the Commonwealth.

These objectives provide the framework for developing a construction package which establishes the physical base for clinical health sciences education, service and research at the University of Louisville. The current construction proposal includes four projects which complement Phase I Health Sciences Center construction: A University Core Regional Teaching Hospital (Concentrated Care Building), a clinical faculty office tower (Ambulatory Care Building) and a combined parking structure and institutional services center (Parking Deck I) renovation of the "K" Building (for clinical research) of the present Louisville General Hospital.

Recognizing that a modern hospital contains activities which require four distinct building types, this separation of the hospital into distinct structures is proposed as a specific and positive step to construction economy. The four building types include a modified hotel for in-patient care units, a medical office building for faculty offices, administration, clinics and cafeteria; an industrial building containing logistics, shops, stores and lockers and a high intensity scientific building for surgery, radiology, intensive care, laboratories, delivery, etc.

The Concentrated Care Building of the Core Regional Teaching Hospital will contain only those elements essential to in-patient care. The Ambulatory Care Building will be directly related to the Concentrated Care Building. This building will provide permanent administrative, diagnostic and ambulatory care treatment facilities for the clinical faculty. The building will centralize administrative clinical faculty activities, freeing space temporarily occupied in the Medical-Dental Research Building and the Biological Sciences Tower.

The parking structure is an essential component of this project for purposes of patient access and because the site for the Core Regional Teaching Hospital is currently used for surface parking. This structure will also contain institutional service components that are required to support the elements of Phase I. Its location is a conclusion of the overall Comprehensive Facilities Development Plan and will be integrated with the main circulation patterns of the Health Sciences Center.

The utilization of a section of the vacated Louisville General Hospital, referred to as the "K" Building, will accommodate clinical research and specialty clinics that lend themselves to a laboratory environment.

A total of 603,000 gross square feet of space is proposed for this phase.

Phase II Stage 2

This phase of the Long Range Development Plan proposes the following additional facilities:

- Student Commons and Continuing Education Center
- Faculty-Staff Center
- Nursing and Allied Health Sciences
- Cancer Institute
- Neurosciences Institute
- Pediatric Complex
- An institute program (undefined)
- Additions to "K" Building
- New housing
- Parking Deck 3 (500 spaces) including an Institutional Services Center
- Parking Deck 4 (750 spaces)

A total of 633,200 gross square feet of new space is proposed for this stage of construction.

Two additional parking structures, housing a total of 1,250 cars, are proposed. Parking Deck 3 will include 49,200 gsf for an Institutional Services Center for the western portion (west of Preston Street) of the expanded campus. The inability to adequately "tunnel" under Preston Street made this additional Institutional Services Center location necessary.

Parking for this phase includes 854 surface spaces and 2,902 spaces in decks for a total of 3,829 spaces.

The plan indicates additional "pedway" link connectors between facilities.

Construction in this stage includes a School of Nursing and Allied Health Sciences, a Center for Continuing Education, a Student Commons and a Student Apartment Complex. The first of the three programs is under active development at this time. Since space is required now and space requirements will increase rapidly before any possibility exists for permanent space, interim space will be provided. As these programs mature, definitive space projects and permanent quarters can be developed.

These projects are recognized as essential components of the Health Sciences Center Master Plan. It is difficult to project priorities and timetables as they will change with the funding patterns and health manpower needs of the Commonwealth. However, every effort will be made to consolidate the construction phasing and accomplish the objectives of the master plan for the Health Sciences Center in the shortest possible time span.

At the conclusion of Phase II Stage 2 construction, the major educational elements of the University Health Sciences Center will have been activated. This means that Phase III deals principally with provision for unanticipated elements and growth of existing elements. Major changes in health care delivery are taking place and will continue to do so during the remainder of the decade. The final effect of these changes on the need for space is largely unpredictable.

Phase III

This phase of the Long Range Development Plan proposes the following additional facilities:

- Expansion of the Concentrated Care Building
- Expansion of the Ambulatory Care Building
- Institute expansion (vertical Neurosciences Institute)
- An institute (south of Parking Deck 2)
- An institute (adjacent to Child Psychiatric and Research Clinic)
- Clinic Research Building
- Expansion of the Nursing and Allied Health Sciences Building
- Expansion of the Library (vertical expansion)
- Expansion of the "K" Building
- Expansion of Pediatric Complex
- Expansion of the Student Commons and Continuing Education Center
- New housing
- Rehabilitation of some existing housing (north side of Grey Street between Hancock and Clay)
- Parking Deck 5 (400 spaces)
- Parking Deck 6 (900 spaces)
- Parking Deck 7 (500 spaces)

A total of 817,100 gsf of new space, essentially expansion of previously constructed facilities, is proposed for this phase.

Three additional parking structures providing 1,800 spaces is proposed. Parking for this phase includes 336 surface spaces and 4,702 spaces in decks for a total of 5,038 parking spaces.

The plan indicates the extension of the pedway linkages.

There are two additional growth patterns which should be anticipated in terms of future development.

First, a bed addition to the core hospital is being planned in an orderly manner during Phase II, Stage 1 to avoid displacement of existing operations at the time of expansion. A bed expansion of approximately 50% is included in the agency plan.

Second, a pattern of special function units or institutes has been developing within the Health Sciences Center. Eye, rehabilitation , radiotherapy, child evaluation, and the psychiatric research units are examples. Other institutes such as cancer, neurosciences, handicapped children, heart and health care delivery are included in the program.

Phase III, then, deals with provisions for anticipated as well as unanticipated elements and growth of existing elements. Changes in health care delivery systems are taking place and will continue to do so. Recognizing that the exact nature of these changes is not totally predictable, the Comprehensive Facilities Development Plan provides area for the orderly addition of these elements to the Health Sciences Center with special emphasis on site selection as it reflects internal relationships of the center. The Health Sciences Center also has extensive interaction with affiliated institutions. Special attention has been given the western regions of the center where physical location of University projects affect these institutions.

Statistical Summary

Long Range Development Plan

Facilities

Existing	796,276 gsf
Proposed	2,191,000 gsf
Total	2,987,276 gsf

Housing

Existing (apts)	81,450 gsf
Proposed (apts)	313,200 gsf
Total	394,650 gsf

Parking

Existing	1,748 spaces
Proposed	3,290 spaces
Total	5,038 spaces

Campus Acreage (University Property)

Existing	35.4 acres
Proposed	22.5 acres
Total	57.9 acres

3 Shelby Campus

Development Zones

The relatively undeveloped Shelby Campus offers many opportunities for development as a site for cluster colleges or cluster institutes.

The scheme illustrated on the following page suggests a new entrance boulevard from the Hurstbourne Lane extension. The north entry from Whipps Mill Road should be improved to a boulevard entrance. The existing entry from Shelbyville Road can be retained until the fourth cluster is constructed.

The southern portion of the campus, along Shelbyville Road, could be sold or leased to private developers for commercial or office building use.

Four academic clusters are proposed. Approximately 3,000 cars can be parked in surface lots. Additional parking can be introduced along the ring road but is not included in the total. Open space and athletic areas are located in the northern and eastern portion of the campus. These areas are not suitable for major construction due both to poor subsurface conditions and being in the flood plain areas of Beargrass Creek.

Shelby Campus development could serve to reduce the total academic, housing, parking and athletic space load projected for the Belknap Campus. (This would add a degree of flexibility in the continued development of Belknap Campus). Shelby Campus may also develop as a community-oriented campus serving many of the adult education and continuing education needs of the county.

Although academic programs for Shelby Campus have not been finalized, the capacity of the campus can be evaluated. The development shown on the following diagrams can house approximately 8,570 full-time equivalent students (11,900 headcount) in three-story academic facilities and four- to six-story housing units.

As academic programs are developed the physical planning programs will require further evaluation with regard to parking policy and athletic space requirements.

A steam and chilled water plant is recommended if expansion occurs within a relatively short time interval. However, full development of the campus may be as much as 10 to 20 years away.

The Zones

Cluster 1—Academic/Housing—is situated at the end of the proposed entrance boulevard and next to a major parking area and the athletic facilities to the north. Cluster 1 contains 430,650 g s f of academic space, 107,700 g s f (538 beds) for housing. It also includes the existing Student Union Building 36,147 g s f for a total of 430,650 g s f–projected capacity is 2,266 F T E students.

Cluster 2—Academic/Housing—is made up of new structures. It includes 345,400 g s f of academic space and 139,000 g s f (695 beds) of housing. The projected capacity is 1,817 F T E students.

Cluster 3 is envisioned as a Community College cluster containing 345,400 g s f and includes the existing Administration Building of 73,661 g s f The cluster's central location will permit close interaction with both Academic/Housing clusters and the Center for Continuing Education. Cluster 3 can be developed earlier than the others in that much of the existing road pattern, parking and existing entrance from Shelbyville Road can be retained. Immediately west of this cluster is the proposed Steam and Chilled Water Plant, another important element in the early development of the campus. From this central cluster the other clusters, roads and parking can develop. The capacity of this cluster is 1,915 F T E students.

Cluster 4 can be developed as a Center for Continuing Education containing 488,600 g s f with adjacent parking for 600 cars. The capacity of this cluster is 2,571 F T E students.

Existing Housing Cluster. The School of Music now occupies structures originally used for dormitories. When the school is relocated to Belknap Campus, these facilities, after renovation, can once again be used for housing. (Approximately 1,500 students could be housed on campus.)

All clusters fall within a five-minute walking radius.

Statistical Summary

Long Range Development Plan

Academic

Existing	128,783 gsf
Proposed	1,415,040 gsf
Total	1,543,823 gsf

Housing

Reuse of housing units (now used for academic space) and new housing	
Total	1,500 beds / 301,872 gsf

Parking

Existing	548 spaces
Proposed	2,752 spaces
Total	3,300 spaces

Athletic Acreage

Existing	undefined
Proposed	18 acres
Total	18 acres

Athletic Education Spaces

Existing	none
Proposed	94,150 gsf
Total	94,150 gsf

Acreage

Existing	243 acres
Proposed (loss)	4 acres
Total	239 acres