

**PATTERN FOR GROWTH FOR
THE UNIVERSITY OF DELAWARE**

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WOOD & TOWER

PRINCETON, NEW JERSEY • COS COB, CONNECTICUT • HOUSTON, TEXAS

1965

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CAMPUS PLANNING

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THE FACTORS

CAMPUS PLANNING

Planning a campus requires continuous and not inter-

Planning the future physical plant of a university:

is an active and continuing process. It is a mov-

ing picture which has no ending. It is not a

static plan or blueprint except, as in the cinema,

when for an instant a fixed picture flashes, only

to be succeeded by another slightly more advanced

in the story. The Pattern for Growth presented

herewith is an outline for the story of the future

physical plant of Delaware -- it is not a so-

called Master Plan. ly the direction in which the

picture is moving.

THE FACTORS GROWTH PREDICTIONS

Growth planning at Delaware can be projected more accurately
Planning a campus requires continuous and not inter-
mittent attention to many elements which are changing:
and the unique position of the University within the state.

"The University of Delaware," a statistical
study made in 1965, predicted:
Number of undergraduates
Ratios of men and women
Number of graduate students
Curricula
Research programs
Size of faculty
Availability of capital funds
Operating costs
Admissions policy on
"in-state" enrollment.
Availability of land site

The picture of the future can only be seen with any
sharpness of outline for about 5 years -- beyond
that you can sense only the direction in which the
picture is moving.

GROWTH PREDICTIONS

Growth planning at Delaware can be projected more accurately than at most universities because of the size of the state and the unique position of the University within the state.

"The University of Delaware Looks Ahead," a statistical study made in 1963, is a carefully documented prediction and yet obviously cannot evaluate a number of the unknowns.

1. The effect of the admissions policy on "in-state" and "out-of-state" enrollment.
2. The effect of the higher standards of academic achievement to stay "in" the University.
3. The effect of changes in curricula.
4. A higher increase in the immigration rate to Delaware from other states.

THE EDUCATIONAL PLANNING

Never has this been so difficult and for these reasons:

Teaching techniques are changing because of

1. Better research into the learning process
2. Use of closed circuit television
3. Need to conserve faculty time
4. Need to improve space utilization

Curricula are changing as the result of

1. Better preparation of students in secondary schools
2. Increase in graduate students
3. Increased emphasis on science
4. Changing concepts in engineering education
5. Efforts to reduce years required for advanced degrees
6. More two-year terminal courses
7. Increased demand for technicians

Research needs are unpredictable because of

1. Newly opened fields of knowledge
2. The computer
3. Government subsidies
4. Competition for the best faculty

THE BASIS FOR THIS PATTERN ~~THE~~ CAMPUS

The uncertainties of the future require that this study be directed to produce flexibility, elbow room and turning space, if it is needed.

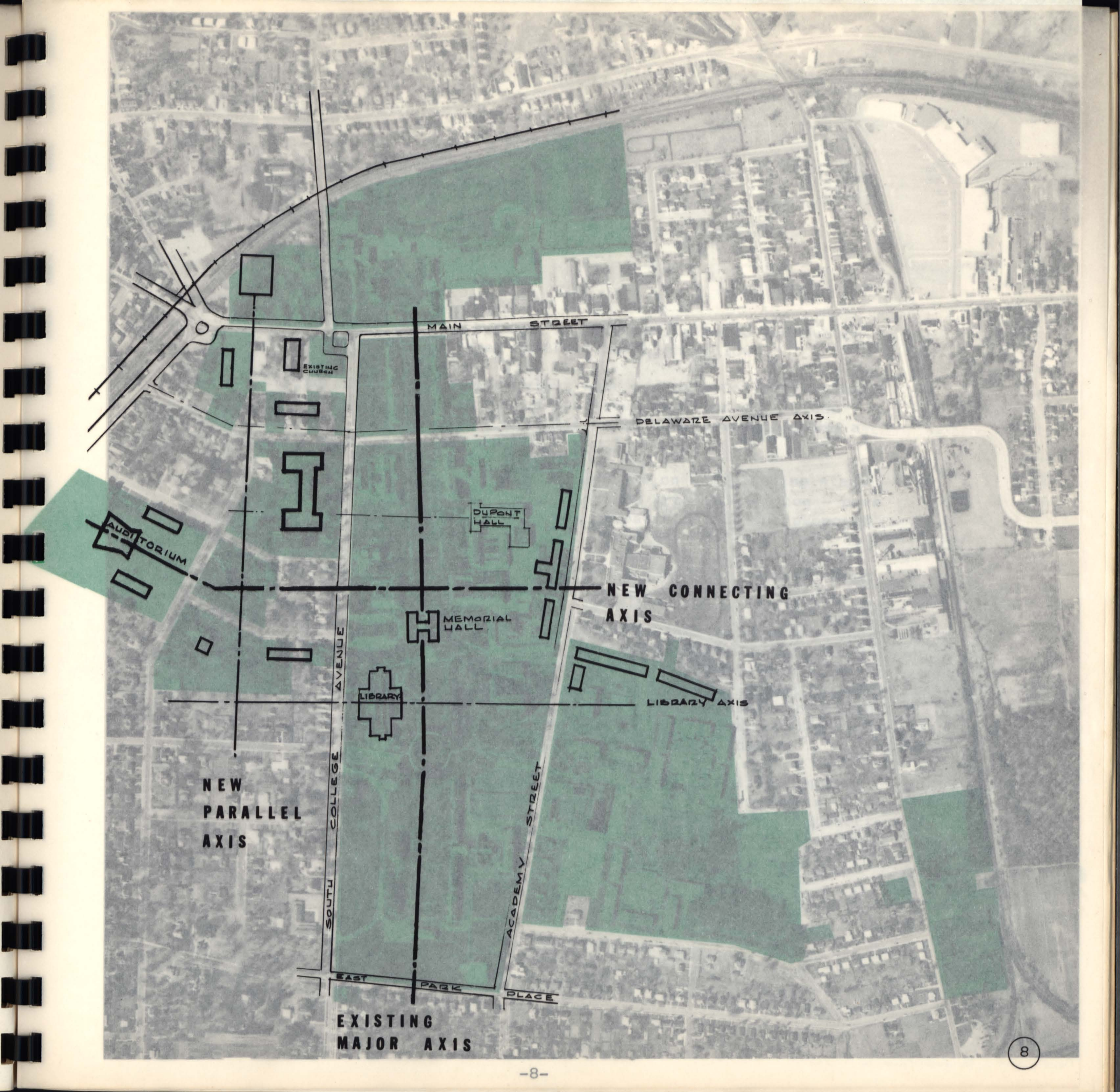
The projected enrollment figures given in "The University of Delaware Looks Ahead," the Blue Book of June 1963, have been the basis for projecting the facility needs to the Fall of 1977. This is for an undergraduate population of approximately 12,500.

Space requirements for athletic facilities used for recreational as well as academic purposes have not been included. They have already been established in a Wood & Tower report entitled "Facilities Requirements for Athletic Programs at the University of Delaware" dated September 1963.

EXPANSION OF ACADEMIC CAMPUS

In order to maintain the quality of the campus, with its present density of land use, new academic buildings should be placed in locations which will complement the existing campus layout.

This can be achieved by expanding the campus, west of South College Avenue, where the proposed buildings will grow along two new axes, one relating and parallel to the present mall, and the other running East and West and serving to unify the entire campus. The close relationship possible between the present and new academic areas is shown on the photomap and overlay following.



EXISTING
MAJOR AXIS



COLLEGE OF
EDUCATION

ACADEMIC BUILDING SITES AVAILABLE

LOCATION

The relationships between the present, planned and future buildings may be seen on the plan which follows.

The proposed academic campus west of South College Avenue provides locations for an ultimate expansion of 450,000 gross square feet of academic building space (including a possible auditorium).

BUILDING

Three buildings now in the construction and planning stage -- Chemical Engineering, Education and Arts and Science - have already been located on sites compatible with the proposed future campus expansion.

Future buildings, none of which need be over three or four stories, can be located along the new axes.

It should be noted that the mall need not be affected and that unforeseeable needs of the future can be accommodated in suitable locations on the proposed expanded campus.

Ample room will be available for unusual expansion of certain programs as well as the addition of specialized buildings, which may be required for future educational needs.

Considering time and distance factors, the building sites available are adequate to meet the needs for future instructional space without resorting to high-rise construction, for the foreseeable future.

+ 0 MIN. WALKING TIME FROM THE LIBRARY

**COLLEGE OF
EDUCATION**

**LOCATION
FOR FUTURE
COLLEGE**

**ARTS & SCIENCE
BUILDING**

**POSSIBLE
AUDITORIUM**

**CHEMICAL
ENGINEERING**

SYMBOLS

- POSSIBLE FUTURE CONSTRUCTION
- PLANNED CONSTRUCTION

CENTRAL AREA

**PROPOSED PATTERN
FOR INSTRUCTIONAL
SPACE GROWTH**

SCALE 0' 100' 200' 300' 400'

+ 0 MIN. WALKING TIME FROM THE LIBRARY



CENTRAL AREA

PROPOSED PATTERN
FOR INSTRUCTIONAL
SPACE GROWTH

SCALE 100' 200' 300' 400'

SUMMARY OF ACADEMIC SPACES

Academic space includes classrooms, lecture rooms, laboratories, faculty offices and the service spaces which they require -- such as corridors, stairs, toilets, storage spaces, and the structure itself -- generally termed gross square footage of a building.

A determination of future space needs was made by taking each course presently taught and projecting the number of students who would be taking that course at two future dates -- the Fall of 1971 and the Fall of 1977. By using this method, it is possible to predict, with reasonable accuracy, not only the gross area required, but the size, number and college in which classrooms, lecture rooms, laboratories and faculty offices will be needed.

The study does not include space needed in the College of Agriculture, but does include space needs for the service courses which other colleges provide for students in the College of Agriculture.

The findings as to future space needed are summarized on the following page.

The University of Delaware at present occupies 533,000 gross square feet of academic space. An additional 142,000 square feet (College of Education Building and Chemical Engineering Building), will be bid in the Spring of 1966, making a total of 675,000 square feet which will be available in the near future.

By 1971 a total of 777,000 square feet of academic space will be required. By 1977, the total requirements amount to 867,000 square feet. A tabular summary, showing the amount of construction required is as follows:

Space Required by 1971	777,000 SF
Existing Academic Space	533,000 SF
Planned Academic Space	<u>142,000 SF</u>
	<u>675,000 SF</u>
Construction Required by 1971	102,000 SF
Total Space Required by 1977	867,000 SF
Total Space Required by 1971	<u>777,000 SF</u>
Construction Required 1971-1977	90,000 SF

HOUSING

"The University of Delaware Looks Ahead" indicates the number of beds needed for undergraduates in 1977 to be 7793. In addition, there will be at that time about 1100 graduate students on campus who will require housing. This totals 8893 beds.

SUBSEQUENT GROWTH

The new academic areas will still provide considerable space needs before it might become necessary to add any buildings to the mall.

The northern part of the mall is presently occupied largely by the sciences and engineering which is a good relationship. The suggested development will create an area west of South College Avenue for the strictly Arts College disciplines -- the humanities, the languages, the arts, literature, the social sciences and music.

This leaves the specialized colleges such as Engineering, Agriculture, Education, Nursing, Home Economics and Business and Economics on the periphery which is as it should be. The core is the College of Arts and Sciences which teaches 72% of the classroom hours taught on this campus, a large part of which are services for the other colleges.

Undergraduates	700
Graduates	700
Undergraduates (under construction)	780
Undergraduates (planned)	700
Southern Area	
Undergraduates	1400
Graduates	700
TOTAL	5180

HOUSING

"The University of Delaware Looks Ahead" indicates the number of beds needed for undergraduates in 1977 to be 7700. In addition, there will be at that time about 1100 graduate students on campus who will require housing. This totals 8800 beds.

There were 3252 beds available in September 1965. Hence, 5548 additional beds are needed.

The plans of the Northern, Central and Southern Campus areas which follow indicate possible locations for these additional housing facilities. The estimated walking time from the library is indicated on the drawings.

Possible Capacity of New Dormitories

Northern Area

Undergraduates	700
Graduates	700
Married Students (Under graduates or Graduates)	700

Central Area

Undergraduates (under construction)	785
Undergraduates (planned)	500

Southern Area

Undergraduates	1400
Graduates	700

TOTAL 5485

SYMBOLS

	PARKING
	PROPOSED HOUSING AREA

PROPOSED HOUSING & RESEARCH & DEVELOPMENT AREA

SCALE: 1" = 100' (approx.)

+20 MINUTES FROM "DATUM" OR TIME ZERO
AT THE MORRIS LIBRARY.

+20 MIN.

FUTURE
DORMITORY
COMPLEX

PARKING

F02

RESEARCH AND
DEVELOPMENT AREA
INDUSTRY SPONSORSHIP PROJECTS

4000

CARS

+16 MIN

POSSIBLE FUTURE AREA
FOR MARRIED STUDENT
HOUSING COMPLEX (OR GRADUATE)
15 MINUTES FROM LIBRARY.

PARKING FOR
3000 CARS

STUDENT
SERVICE
CENTER

+12 MIN.

GRADUATE
STUDENT
HOUSING AREA
12 MINUTES FROM LIBRARY
(TOTAL OF 700 BEDS.)

UNDERGRADUATE
STUDENT
HOUSING AREA
10 MINUTES FROM LIBRARY
(TOTAL OF 700 BEDS.)

+12 MIN

POSSIBLE FUTURE
10-HOUSE FRATERNITY AREA
WITH CENTRAL DINING HALL AND RECREATION SPACE
FOR A TOTAL OF 420 STUDENTS, ± 12 MIN FROM LIBRARY

WHITE CLAY CREEK DRIVE

NORTH COLLEGE AVE.

SYMBOLS



PARKING



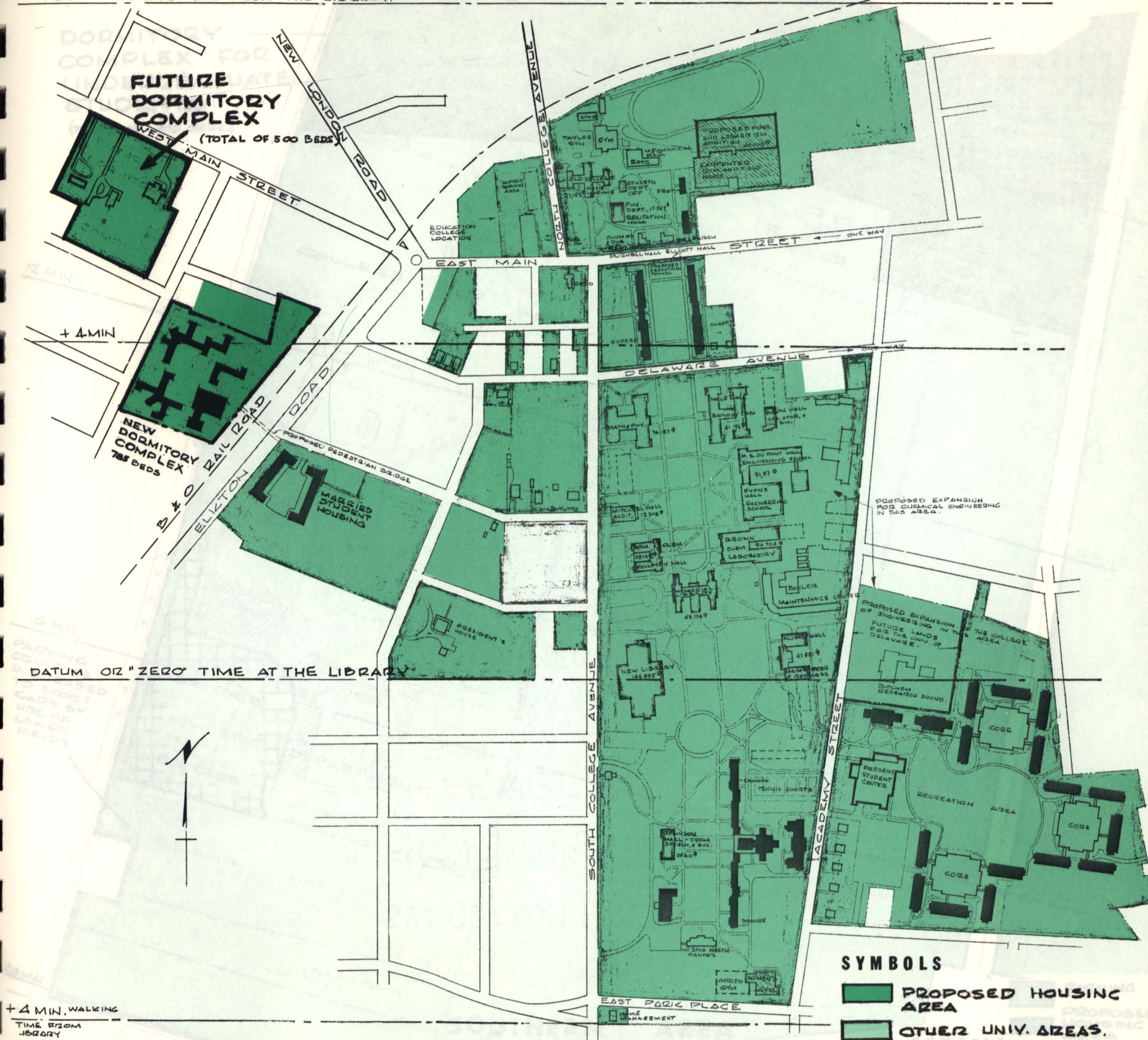
PROPOSED
HOUSING AREA

PROPOSED HOUSING +
RESEARCH & DEVELOPMENT AREA

SCALE 0' 50' 100' 200' 300' 400' 500'



NORTHERN AREA

+ 8 MIN. WALKING TIME FROM THE LIBRARY.



CENTRAL AREA

SYMBOLS

-  PROPOSED HOUSING AREA
-  OTHER UNIV. AREAS.

PROPOSED PATTERN
FOR GROWTH FOR
STUDENT HOUSING

SCALE 0' 50' 100' 200' 300' 400' 500'

**DORMITORY
COMPLEX FOR
UNDERGRADUATE
STUDENTS**
(TOTAL OF 1400 BEDS.)

8
MINUTES
FROM LIBRARY

PENNSYLVANIA R.R. TRACKS

PROPOSED TUNNEL
TUNNEL UNDER R.R.

WALK TO DORMITORIES FROM BRIDGE & FUTURE TUNNEL

WALK TO DORMITORIES & PARKING

PROPOSED
PARKING

1200 CARS

8 MINUTES
FROM LIBRARY

**FUTURE
GRADUATE
STUDENT
HOUSING**

700 STUDENTS

12 MIN.

COLLEGE

OF

AGRICULTURE

AGRICULTURAL
BUILDING

SEWER

SANITARY

PEDESTRIAN
WALK

PRACTICE FIELDS

16 MIN.

PARKING
500 CARS

ATHLETIC

FUTURE
PARKING
500 CARS

DEPARTMENT

PRACTICE
FIELDS

PRACTICE
FIELDS

POSSIBLE FUTURE
PARKING

12 MIN.

16 MIN.

20 MIN.

CHESTNUT HILL ROAD.

SOUTHERN AREA

SYMBOLS

- PARKING
- PROPOSED HOUSING AREA
- OTHER UNIV. AREAS

STUDENT HOUSING PATTERN

SCALE 0' 100' 200' 300' 400' 500'

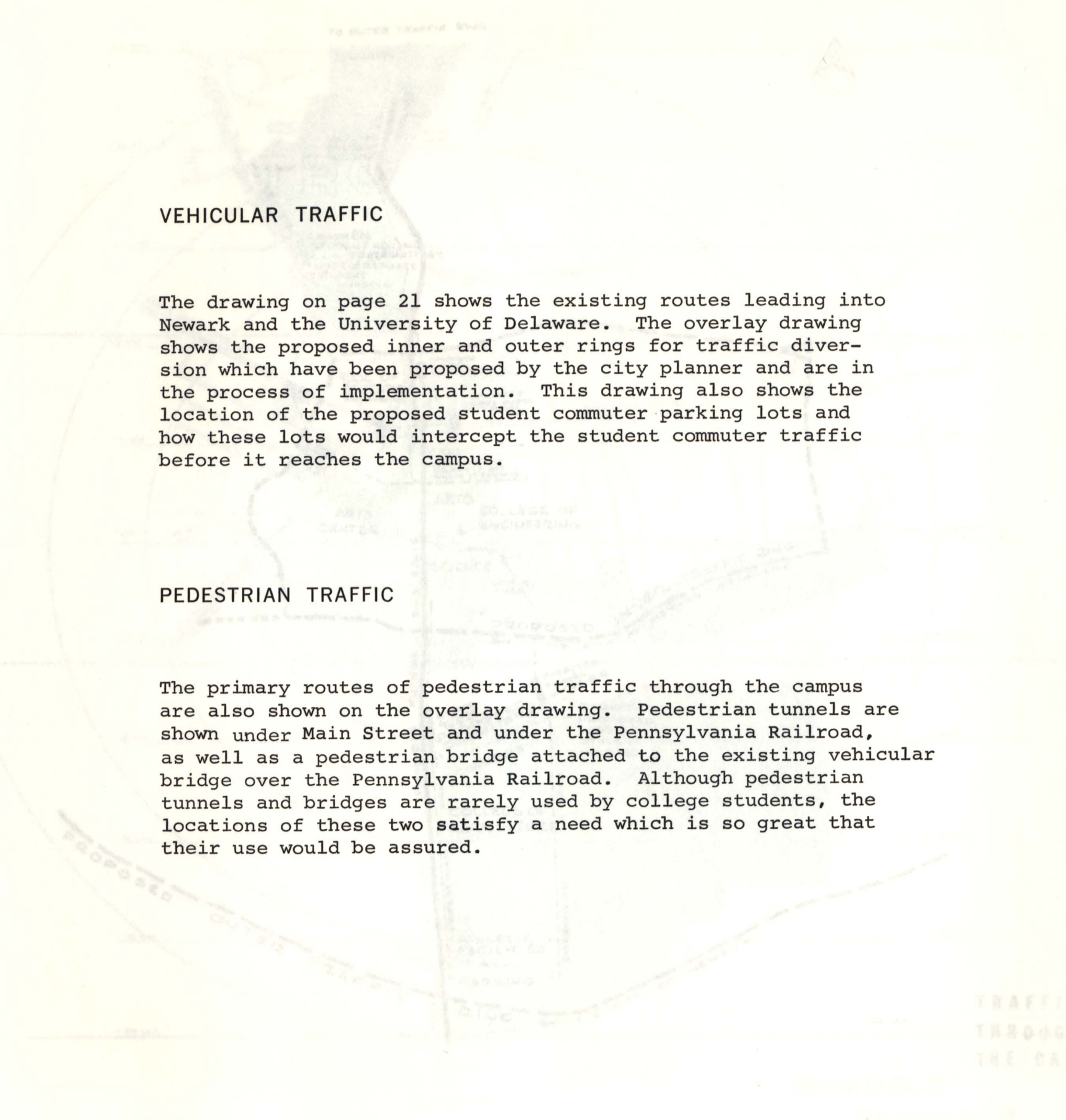
VEHICULAR TRAFFIC

SPONSORED RESEARCH FACILITIES

The preceding plan of the Northern Campus area shows a suggested location for Sponsored Research Facilities at the extreme north end of the campus where there is adequate parking and where traffic does not enter the central instructional area.

It is our belief that sponsored research can be conducted most advantageously in a university in a separate entity specially constructed for this purpose. This makes for a more accurate determination of the cost of overhead. It does not use up space intended for the university's primary function which is instruction. It makes it possible to more accurately measure the faculty time taken for this purpose as against the time spent in teaching.

Although pedestrian tunnels and bridges are rarely used by college students, the location of these two satisfy a need which is so great that their use would be assured.



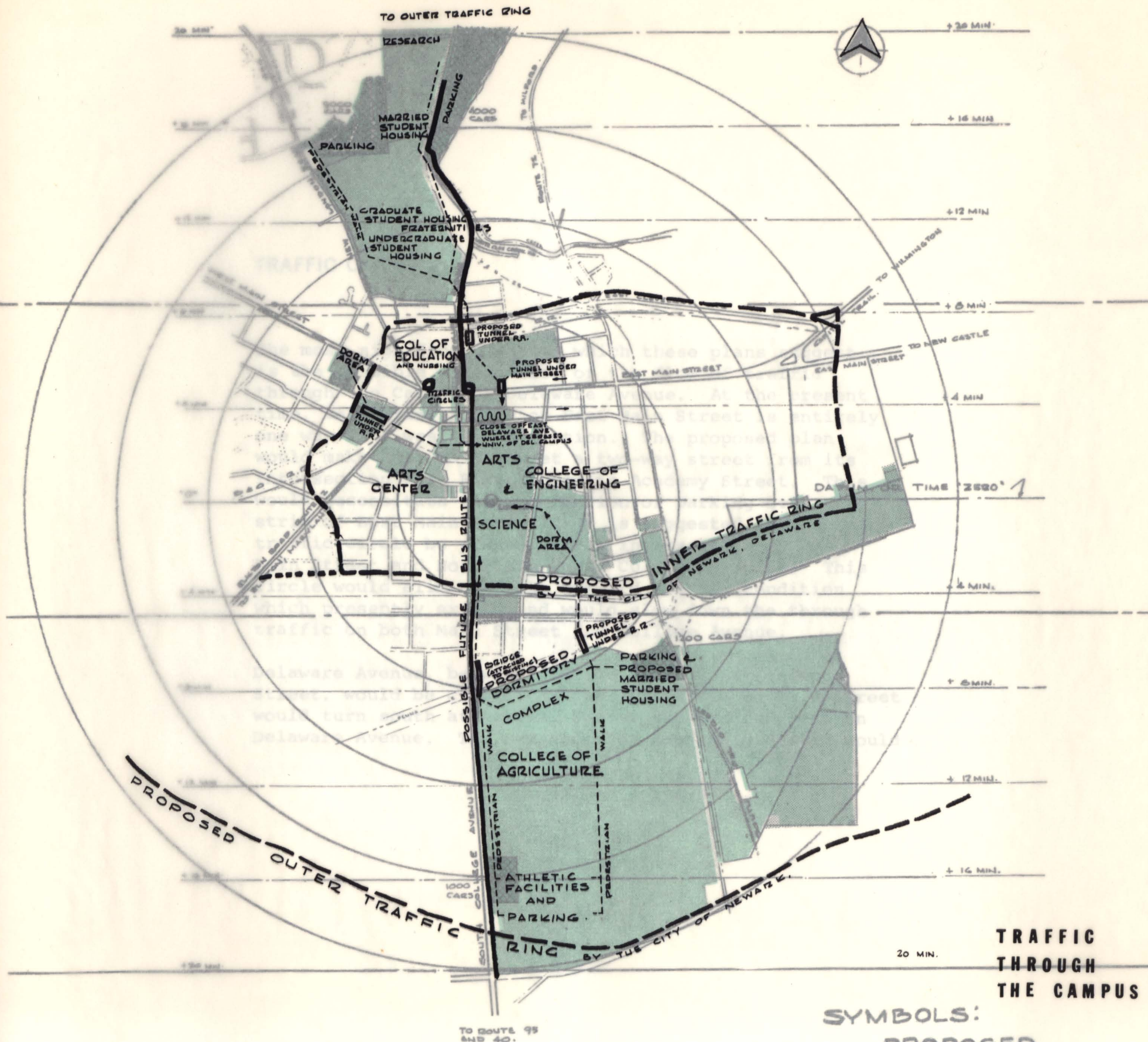
VEHICULAR TRAFFIC

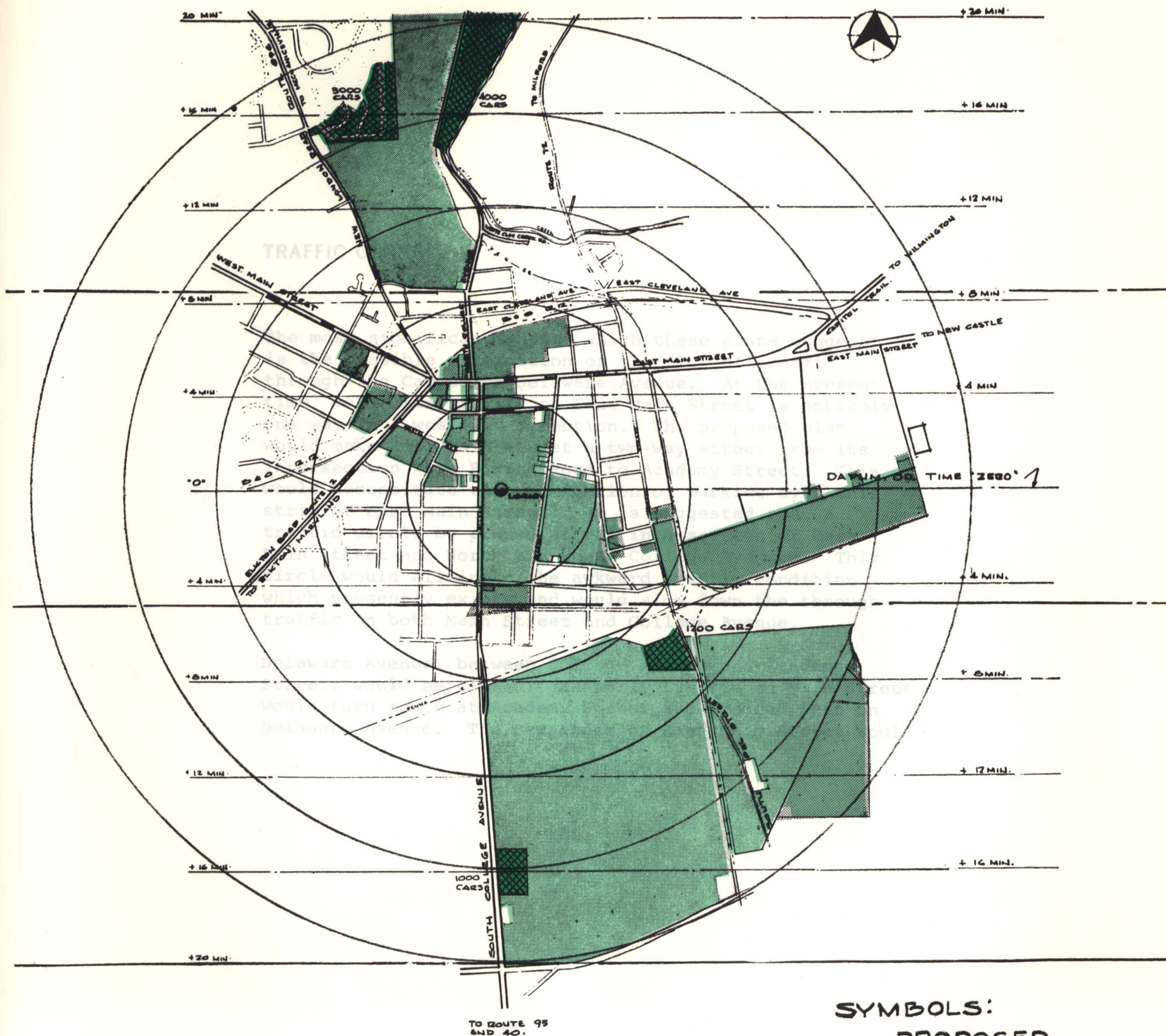
The drawing on page 21 shows the existing routes leading into Newark and the University of Delaware. The overlay drawing shows the proposed inner and outer rings for traffic diversion which have been proposed by the city planner and are in the process of implementation. This drawing also shows the location of the proposed student commuter parking lots and how these lots would intercept the student commuter traffic before it reaches the campus.

PEDESTRIAN TRAFFIC

The primary routes of pedestrian traffic through the campus are also shown on the overlay drawing. Pedestrian tunnels are shown under Main Street and under the Pennsylvania Railroad, as well as a pedestrian bridge attached to the existing vehicular bridge over the Pennsylvania Railroad. Although pedestrian tunnels and bridges are rarely used by college students, the locations of these two satisfy a need which is so great that their use would be assured.

TRAFFIC
THROUGH
THE CAMPUS





SYMBOLS:
PROPOSED
PARKING FOR STUDENT-COMMUTERS.

TRAFFIC CHANGES

The most significant change which these plans suggest is the possible elimination of the flow of traffic through the Campus on Delaware Avenue. At the present time, vehicular traffic on East Main Street is entirely one way in a westerly direction. The proposed plan would make East Main Street a two-way street from its intersection with Elkton Road to Academy Street. This would necessitate the elimination of parking over this strip of East Main Street. It is suggested that a traffic circle be placed at the intersection of East Main Street and North and South College Avenues. This circle would eliminate the awkward traffic condition which presently exists and would slow down the through traffic on both Main Street and College Avenue.

Delaware Avenue, between College Avenue and Academy Street, would be closed. Easterly traffic on Main Street would turn south at Academy Street and proceed east on Delaware Avenue. The remainder of East Main Street would

remain one way in a westerly direction. Another traffic circle, at the intersection of East Main Street, West Main Street, Elkton Road and the New London Road, would further facilitate traffic distribution.

It is believed that this proposal might find some acceptance with the city, if it were done at the time of the creation of the inner and outer ring proposal made by the city planning authorities.

If it should not be possible to accomplish this change, we would suggest that the possibility of depressing East Delaware Avenue through a portion of the Campus be explored. If it were only depressed enough to provide two 10-foot wide passages across it at the Campus level, it would remedy both of the present unsatisfactory conditions which are: (1) the hazard to the students and, (2) the visibility of automobile traffic moving through the Campus.

A graphic presentation of the above changes appear on the following plan and overlay.



PEDESTRIAN
TUNNEL

MAIN ST.

TWO WAY

TWO WAY

ONE WAY

TRAFFIC
CIRCLE

TRAFFIC
CIRCLE

DEPRESS OR CLOSE
DELAWARE AVE.

ONE WAY

CLOSE STREET

CLOSE STREET

SOUTH COLLEGE AVE.

ACADEMY STREET

PARK STREET

TRAFFIC CHANGES



FUTURE MEDICAL CENTER

The Medical School President, Dr. Harvey Cushing, has been elected to the Academy of Medicine, Washington, D. C. In 1954, the President and his staff were plan for a new medical center in the Central Area. It is hoped there will be sufficient space for the new center of New York University and the University of New York. The new center is a potential to a new medical center.

PARKING

At present, there are 2200 parking spaces on campus. It is recommended that these spaces continue to be used for other than student purposes. If additional land is acquired in the Central Area and is not immediately used for building sites, it should be used for additional parking.

For this reason, the drawing on page 21 in the this book shows additional parking spaces. Additional parking is shown on the drawing on page 21 in the Northern Area for 7000 cars and in the South Area for 2200 cars. This provides more than four times as many parking spaces as are presently available.

It is recommended that the time zones indicate a maximum walking time of 20 minutes from the most remote parking lot. If this proved to be an extreme hardship, College Avenue would provide an ideal route for a shuttle bus service.

Multiple story parking garages are not an economic solution to the parking problem until the cost of land is near \$5.00 per square foot. A multiple story garage for 400 cars would cost about \$800,000. The interest on this investment at 5% or \$40,000 would pay for the operation of four shuttle buses.

FUTURE MEDICAL CENTER

The Medical School Feasibility Survey Committee of the Delaware Academy of Medicine recommended, in 1964, that the State of Delaware plan for a tax-supported medical school in the future, and it is hoped there will be sufficient population in the vicinity of Newark to support a 500-bed teaching hospital, which is essential to a medical school.

Although, as that report indicates, a close university affiliation is not necessary, it is highly desirable for a medical school. Such an affiliation also enhances the educational programs of the university and adds to its prestige.

For this reason, this study recommends that land be acquired for this purpose near the University at an early date, while it is still available and at reasonable cost. While the U. S. Public Health Service indicates a minimum site of 35 acres, it also recommends that such a site should contain 50 to 75 acres or more.

It is our belief that the medical centers of the future will be complete communities within themselves associated with universities -- providing for teaching, patient care, basic and clinical research, offices for the permanent staff, housing, schools and even a small shopping center. For this reason, it is recommended that as large a site as possible be provided.

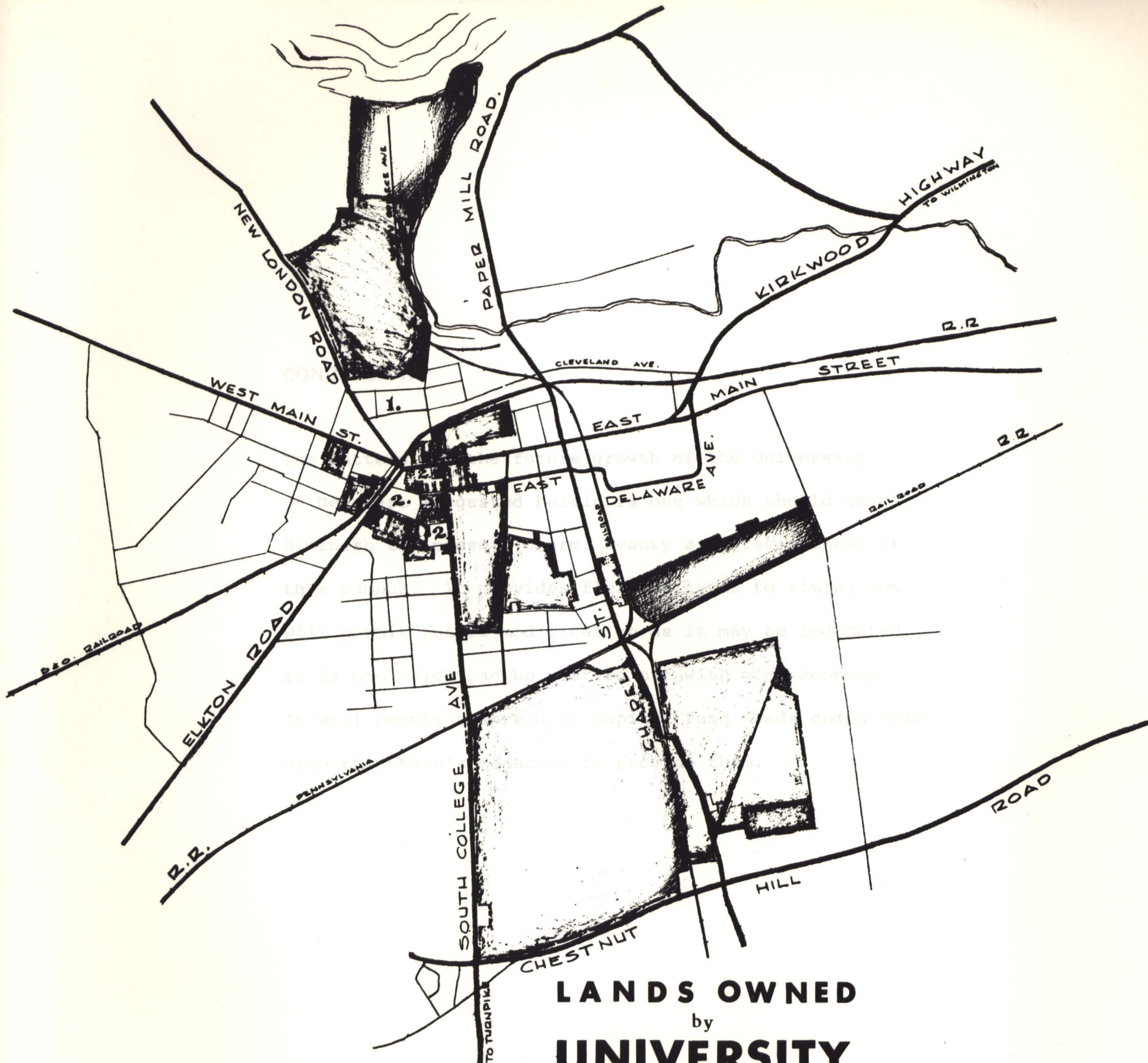


LAND

The University has been acquiring land in recent years, and it is our opinion that it would be prudent policy to acquire the following whenever this land is available at reasonable prices:

1. A passageway of land north of the Baltimore and Ohio Railroad and south of the Laird tract in order to provide controlled access between the north and central areas.
2. The filling out of the city blocks to the west of South College Avenue which are now owned in part and which will be required for the planned growth of the academic area.

LANDS OWNED
UNIVERSITY
of
DELAWARE



LANDS OWNED
by
UNIVERSITY
of
DELAWARE

CONCLUSION

The pattern for the future growth of the University of Delaware suggested herein is one which should never diminish the present charm, beauty and graciousness of this campus. It provides flexibility as to timing and will permit future modification as it may be indicated. It is one which can be carried out with good economy. It will permit a spread of capital fund needs compatible with the state's capacity to provide them.

The architectural features of this
study have been developed with the
assistance of our consulting archi-
tect, W. Winthrop Jones, A.I.A.