

**DRAFT ONLY**



THE AUSTRALIAN NATIONAL UNIVERSITY  
SITE PLANNING REPORT  
MARCH 1969

173

ROY SIMPSON, SITE PLANNER: YUNCKEN FREEMAN ARCHITECTS PTY. LTD.

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15th April 1969

1050/2.1A

D. Dexter Esq.,  
Registrar (Property & Plans),  
The Australian National University,  
Post Office Box no. 4,  
CANBERRA ACT 2600

Dear Mr. Dexter,

ANU Site Planning Report

I have pleasure in submitting for your consideration the Site Planning Report, March 1969, which brings together the results of our collaboration with the University and the preliminary conclusions reached over the first six months of the present appointment.

It is stated in the Introduction that this report is in no sense a final recommendation, but a draft proposal covering the main principles of planning and some suggestions as to implementation. I should add that it has been prepared in considerable haste and is not as complete nor as accurate as we had originally hoped. We were perhaps over-optimistic about the time needed in which to assemble information and for discussion to take place within the University. In addition, a number of important decisions had to be taken in respect of urgent projects and day-to-day problems, consideration of which involved some setbacks in our programme.

Nevertheless, it seemed important to bring initial thinking to a firm line at this stage and I hope that in spite of some signs of haste, this submission will achieve its intended purpose of provoking comment and discussion, from which firm proposals can be developed.

Yours sincerely,

YUNCKEN FREEMAN ARCHITECTS PTY LTD

*Rog Simpson*

THE AUSTRALIAN NATIONAL UNIVERSITY

SITE PLANNING REPORT

MARCH 1969

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## LIST OF ABBREVIATIONS

ANU	Australian National University
AUC	Australian Universities Commission
CSIRO	Commonwealth Scientific and Industrial Research Organization
DPRA	Development Planning and Research Associates
IAS	Institute of Advanced Studies
JCSMR	John Curtin School of Medical Research
NCDC	National Capital Development Commission
PA	P.A. Management Consultants Pty Ltd
RSAgS	Research School of Agricultural Science
RSArch	Research School of Architecture
RSBS	Research School of Biological Sciences
RSChem	Research School of Chemistry
REngS	Research School of Engineering Science
RSNR	Research School of Natural Resources
RSPacS	Research School of Pacific Studies
RSPhysS	Research School of Physical Sciences
RSSS	Research School of Social Sciences
RSVetS	Research School of Veterinary Science
SGS	School of General Studies
TV	Television
VIP	Very Important Person
YFA	Yuncken Freeman Architects Pty Ltd

## INTRODUCTION

Before embarking on this adventure I felt some concern as to whether it would be possible, for a client body so diffuse and so scrupulously democratic in its decision making, to achieve a planning quality worthy of the ANU's high ambitions. During the past six months of intensive activity, fear of breeding committee camels has given way to admiration for the University's processes of review and the high level of collaborative effort and creative thinking that has resulted.

The results of this collaboration and the preliminary conclusions reached over this period are brought together for the first time in the following pages, so that it is now possible to see the beginnings of a total plan emerging. The interactions of the various parts can be studied and opinions formed as to whether the sum of these parts will achieve a transcendent unity.

In the course of our studies, some radical departures from earlier concepts have evolved. It should be stressed that nothing has been changed merely for the sake of change, since the planning team wishes to conserve existing assets and to build on the work of its predecessors rather than undermine it. The changes we suggest arise largely from changes of need. New needs bring new opportunities. We would be failing in our response to the stimulating brief under which we are operating if these opportunities were overlooked in pursuing the vision of a great National University.

We are fortunate in having more certain knowledge of the University's long-range objectives, as a result of the 1968 Survey conducted by Dr Godfrey Linge and the widespread canvassing of opinions that has followed. Equally important is the new shape in which the City is being moulded by the NDCD, which is now more clearly apparent. All this new knowledge must be reflected in the University's physical plan.

Most of this report has been discussed at various levels within the University and we have been guided by the opinions expressed on a wide range of individual topics. Inevitably, some areas of incompatibility have come to attention; in these we have been obliged to apply judgements which may not satisfy all opinions on all aspects. Also, since it has not yet been possible to cover the whole ground, a number of gaps and alternatives will be noted. For these reasons, the report is in no sense a final recommendation, but a draft proposal covering the main principles of planning and some suggestions as to implementation. Firm and more detailed recommendations will be prepared following the University's consideration of this submission.





The University's existing character - of buildings informally scattered through a naturalistic landscape - is a historic fact and historically interesting, recording the University's evolution in a way that it is uniquely Australian. Its better parts are highly attractive assets which should be conserved and developed further.

Its less attractive parts highlight the dangers of 'permissive and adaptive' planning. To avert a dull suburban scatter, to achieve functional efficiency, to match the concept of a National University to the potential of this beautiful site, a firmer discipline is needed.

In planning for growth from a population of 6,000 to 12,000 and above, the new pattern should be flexible (to meet changing needs) yet firm in its guidelines (so that immediate works can be directed towards long-term expectations). The following objectives are basic:

Halt the scatter;

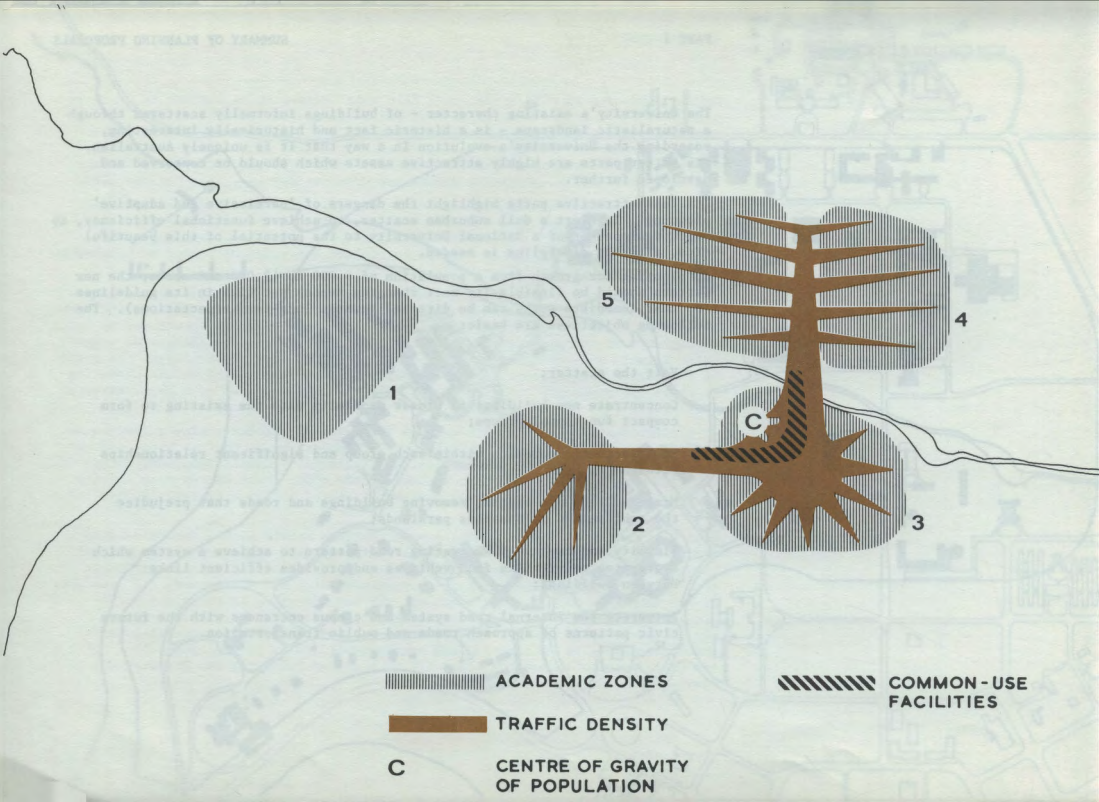
Concentrate new buildings in closer proximity with the existing to form compact functional groups;

Seek aesthetic cohesion within each group and significant relationships between groups;

Maximise the open spaces, removing buildings and roads that prejudice the achievement of spacious parklands;

Simplify and improve the existing road pattern to achieve a system which segregates pedestrians from vehicles and provides efficient links between buildings;

Integrate the internal road system and campus entrances with the future civic patterns of approach roads and public transportation.



ACADEMIC ZONES



COMMON-USE  
FACILITIES



TRAFFIC DENSITY

C

CENTRE OF GRAVITY  
OF POPULATION

The research and teaching buildings on the campus are geographically distributed over five areas:

The Peninsula (JCSMR and RSPHYS)

Central area (Law, Oriental Studies, Pacific Studies)

Arts and Economics area )

Physical Sciences area )

Life Science area )

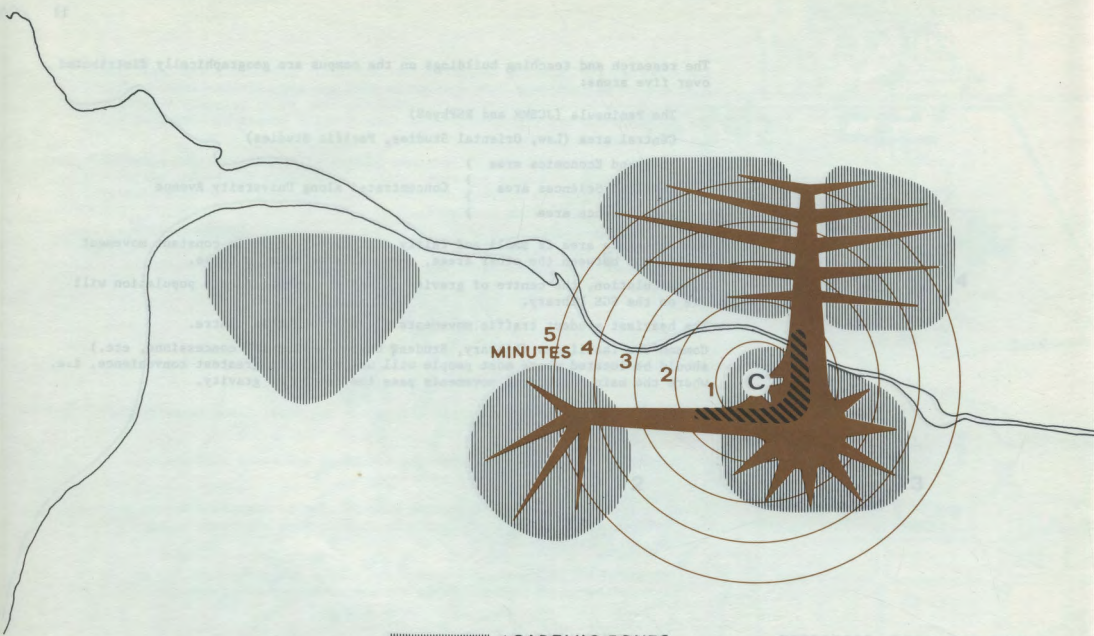
Concentrated along University Avenue

The Peninsula area is small and fairly static, but there is constant movement within and between the other areas, especially between lectures.

By calculation, the centre of gravity (C) of the undergraduate population will lie on the SGS Library.

The heaviest student traffic movements pivot around this centre.

Common-use facilities (Library, Student Union, commercial concessions, etc.) should be located where most people will use them with greatest convenience, i.e. where the main pedestrian movements pass the centre of gravity.



||||| ACADEMIC ZONES

■ TRAFFIC DENSITY

▨ COMMON-USE FACILITIES

▨ COMMON-USE FACILITIES

Undergraduate teaching facilities should be grouped close enough to enable students to transfer between teaching points during the interval between lectures. Therefore they should lie within a 10-minute walking circle (assume 250 ft. walked or one floor climbed per minute).

This area should be a pedestrian precinct, within which all but essential service vehicles are excluded or bypassed by means of safe pedestrian walks (using grade separation if necessary).

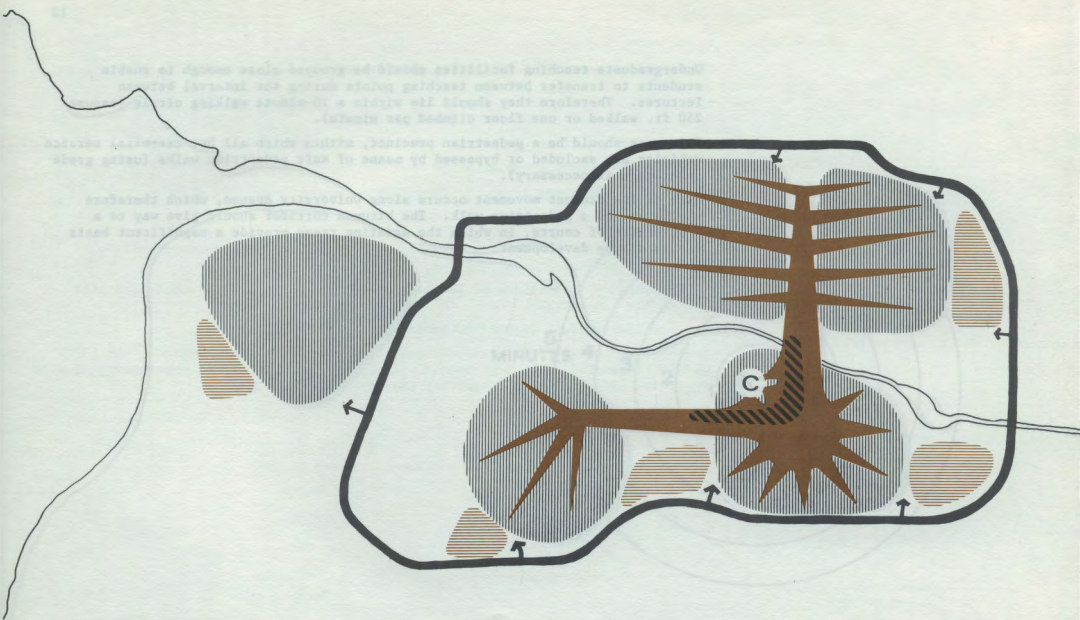
Much of the student movement occurs along University Avenue, which therefore should become a pedestrian walk. The bitumen corridor should give way to a progression of courts, in which the existing trees provide a magnificent basis for landscape development.

PARKING AREAS

ACADEMIC ZONES

TRAFFIC DENSITY

COMMON-USE  
FACILITIES



||||| ACADEMIC ZONES

==== PARKING AREAS

— TRAFFIC DENSITY

/// COMMON-USE FACILITIES

To achieve the pedestrian precincts, vehicular traffic should be concentrated on a peripheral ring road encircling the areas of highest population and movement between buildings.

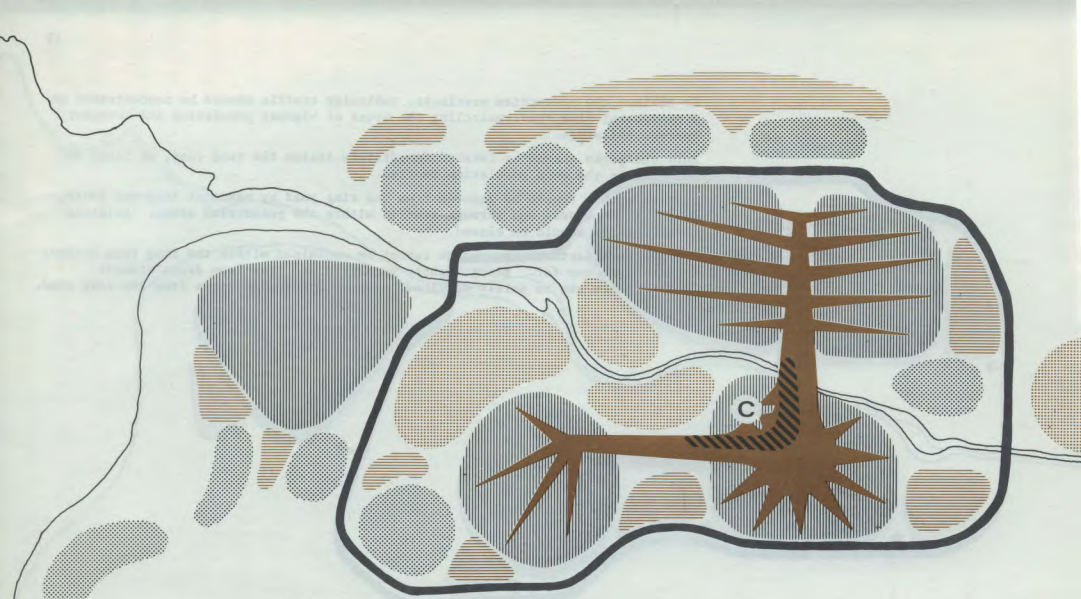
Bulk car parks should be located immediately inside the ring road, as close as possible to the main population centres.

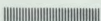


Service access should be inwards from the ring road by means of dead-end spurs, to eliminate cross- and through-traffic within the pedestrian areas. Existing through roads should be closed.

The southern parts of the campus cannot be contained within the ring road without extending it too far. Being lightly populated and free from dense student traffic, they can be safely serviced by spurs leading outwards from the ring road.



RESIDENCES  
PARKING AREAS  
PLAYING FIELDS  
ACADEMIC ZONES  
TRAFFIC DENSITY  
COMMON-USE FACILITIES



-  **ACADEMIC ZONES**
-  **TRAFFIC DENSITY**
-  **COMMON-USE FACILITIES**

-  **RESIDENCES**
-  **PARKING AREAS**
-  **PLAYING FIELDS**

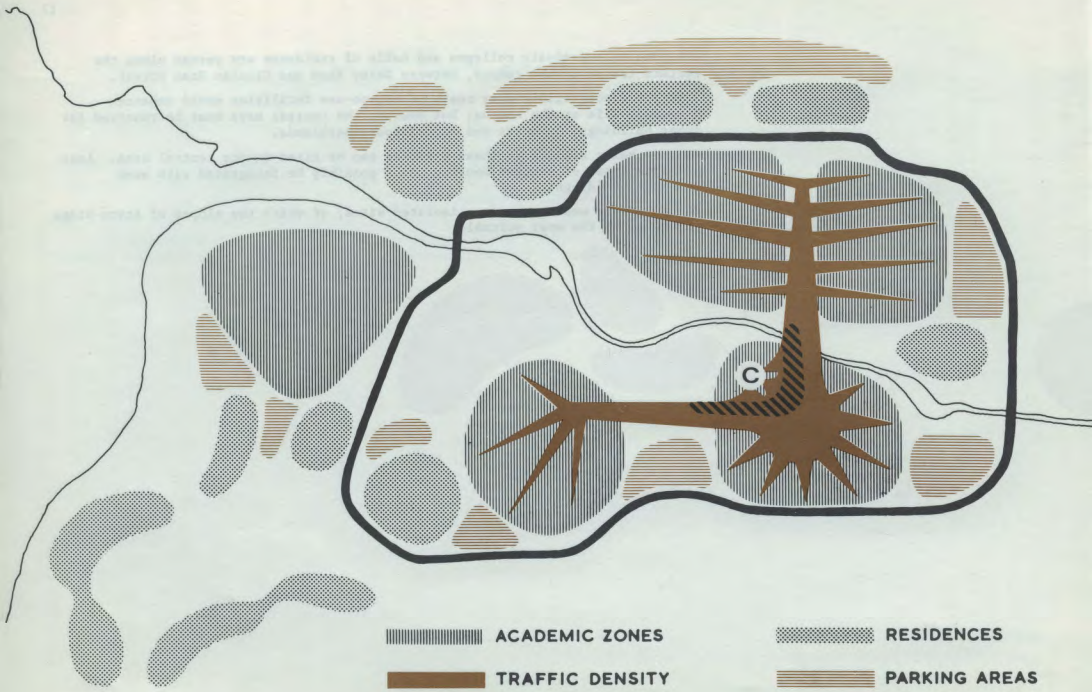


Existing undergraduate colleges and halls of residence are spread along the western fringe of the campus, between Daley Road and Clunies Ross Street.

More residences within easy reach of common-use facilities would enhance community life on the campus; but most of the central area must be reserved for other buildings, carparks and recreational parklands.

Two new halls similar to those existing can be sited in the central area. Less orthodox types of student housing could possibly be integrated with some academic buildings.

The remainder must go on more isolated sites, of which the slopes of Acton Ridge appear to be the most suitable.



||||| ACADEMIC ZONES  
 ■■■■■ TRAFFIC DENSITY  
 ▨▨▨ COMMON-USE FACILITIES

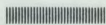
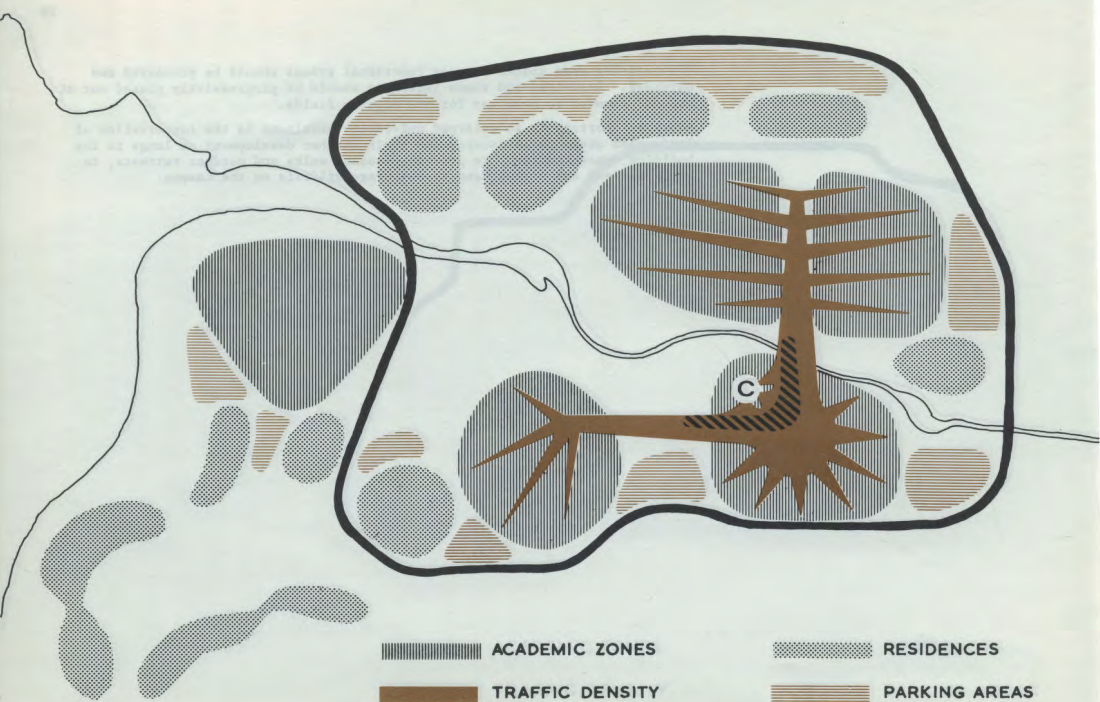
▩▩▩ RESIDENCES  
 ——— PARKING AREAS  
 ····· PLAYING FIELDS

The existing open spaces between functional groups should be preserved and extended. Buildings and roads intruding should be progressively phased out of use and removed to make way for new playing fields.

Equally important to an enlarged university enrolment is the conservation of landscaped areas as landscape, and their further development as lungs to the building concentrations, to provide pleasant walks and outdoor retreats, to enhance views and vistas, and to encourage wildlife on the campus.

RESIDENCES  
PARKING AREAS  
PLAYING FIELDS

ACADEMIC ZONES  
TRAFFIC DENSITY  
COMMON-USE FACILITIES



ACADEMIC ZONES



TRAFFIC DENSITY



COMMON-USE  
FACILITIES



RESIDENCES



PARKING AREAS



PLAYING FIELDS

Initially, Daley Road will form the western sector of the ring road, thus placing a barrier of motor traffic between the undergraduate residences and the academic centre.

This hazard to pedestrians would be removed if the ring road were transferred to Clunies Ross Street and Daley Road closed to through traffic. Communications between the University and CSIRO would also be improved.

However, since Clunies Ross Street will continue to carry public traffic for an indefinite period, the ill effects of merging internal and external traffic must be considered. Widening Clunies Ross Street to form a dual carriageway might improve the situation.

Alternatively, one channel might be retained for public traffic and the other used as part of the ring road system. In the present plan, this alternative has been provisionally adopted.

The following series of phasing studies indicates how the requirements of a campus population of 12,000 might be achieved in triennial stages of development over the next ten years. The final phasing study shows how the requirements of a 40% increase in population could subsequently be achieved.

#### 1. The Existing Situation (1967-69 Triennium)

The population of the University at the time of the Campus Traffic Survey in mid-1968 was just over 6,000. By the end of 1969 the total area of buildings on the site will be nearly 2 million sq.ft. Approximately 8% of this area is provided in temporary buildings.

#### Summary of Facilities Available by the End of 1969 for 6,885 Campus Population:

Postgraduate Research Facilities	688,270 sq.ft.
Undergraduate Arts-based Teaching Facilities	254,400 sq.ft.
Undergraduate Science-based Teaching Facilities	295,050 sq.ft.
Auxiliary Academic Facilities: Animal houses, etc.	23,590 sq.ft.
Field plots	5.8 acres
Libraries	184,600 sq.ft.
Staff Centre, Student Union, Concessions, etc.	28,000 sq.ft.
Sports Pavilions, Boatsheds, etc.	11,085 sq.ft.
Administration	75,050 sq.ft.
Service Buildings	34,700 sq.ft.
Undergraduate Residential Places	1,110 places
Postgraduate Residential Places	180 places



PHASING OF DEVELOPMENT 1967-69

## 2. 1970-72 Triennium

By the end of 1972 the University will have undergone a 45% increase in population. To meet the needs of this increase and to start implementing the planning principles recommended in this report, it is desirable that the developments shown in the plan opposite should be undertaken. In some instances they go beyond what has been applied for in the submission to the AUC and for this reason a priority listing will need to be established to match the financial programme.

Desirably, construction works will include the following:

The works already applied for in the revised submission to the AUC for the 1970-72 triennium, including a new Students Union and conversion of the existing Union. It should be noted that in the Arts-Economics Area there will be a growing deficiency of teaching space until some time in the next triennium;

An undergraduate hall of residence for 400 students, to meet the apparent increase of need as reflected in the population predictions (Appendix 1) and the 1969 enrolments. Provisionally, this hall of residence has been sited on the eastern slopes of Acton Peninsula (see Part II of this report) but more central sites are available if preferred;

The first stage of a new University Store in the north west corner of the site to meet an apparent deficiency of storage space;

The establishment of a plan for the progressive removal of temporary buildings;

Roadworks to the limit of available funds, to establish quickly the principles of the proposed new traffic pattern. These include the phasing out of some existing roads, including University Avenue and parts of



- LEGEND**
- 1 MATHEMATICS
  - 2 COCKCROFT
  - 3 TANDEM GENERATOR
  - 4 JCSMR
  - 5 ANIMAL BREEDING ESTABLISHMENT
  - 6 BURGMANN COLLEGE
  - 7 RSB S
  - 8 SERVICES AND FACILITIES
  - 9 PSYCHOLOGY
  - 10 BIOCHEMISTRY
  - 11 GARDENERS' DEPOT
  - 12 UNIVERSITY STORE
  - 13 CHEMISTRY
  - 14 SPORTS UNION
  - 15 UNION
  - 16 CONCESSIONS
  - 17 RESTAURANT, STUDIOS/EXHIBITION
  - 18 PERFORMING ARTS CENTRE
  - 19 CHANCELRY HALL, EXHIBITION SPACE
  - 20 AUDITORIUM
  - 21 ARTS-ECONOMICS
  - 22 LAW
  - 23 UNDERGRADUATE HALL OF RESIDENCE
  - 24 ROWING BOATHOUSE



**PHASING OF DEVELOPMENT 1970-72**

Eggleston, Garran, Sullivans Creek and Science Roads, and the construction of new roads to establish part of the proposed new University ring road. The ring road, in this phase, would utilise parts of Liversidge Street and Balmain Crescent as parts of the ultimate plan, and Daley and Ward Roads as a temporary measure. New roads are proposed along the north and east boundaries to link Daley Road and Liversidge Street, and east of the JCSMR-RSPhysS Area to link Balmain Crescent and Ward Road.

Car-parking provisions should overcome present deficiencies as well as cope with the increase. The first stages of bulk perimeter carparks are proposed, north of the Physical Sciences Group, in the north-east corner of the site, east of the Chancelry and south of Geophysics.

Landscape works should be accelerated to establish the foundations of the new pattern. The sooner trees are planted, the sooner this will become apparent. During this period the broad sweeps will be more important than the detail, but new buildings and roadworks must, of course, be properly treated. The elimination of parts of Eggleston and Garran Roads will permit the first stages of an extension of sports fields in the direction of the Glade.

As a flood-control measure, as well as a landscape improvement, the untreated section of Sullivans Creek should be excavated to form a second basin upstream of the Cascade. The backwater at the head of the existing lower pond should be eliminated in this process.

Summary of Works for 1970-72	Carried Forward from 1967-69	Phased Out in 1970-72	Added in 1970-72	Total Available for 8,945 Campus Population
Postgraduate Research Facilities	688,270 sq.ft.	28,520 sq.ft.	143,040 sq.ft.	802,790 sq.ft.
Undergraduate Arts-based Teaching Facilities	254,400 sq.ft.	41,000 sq.ft.	45,900 sq.ft.	259,300 sq.ft.
Undergraduate Science-based Teaching Facilities	295,050 sq.ft.	6,250 sq.ft.	89,800 sq.ft.	378,600 sq.ft.
Ancillary Academic Facilities (Animal Houses, etc)	23,590 sq.ft.	1,900 sq.ft.	8,400 sq.ft.	30,090 sq.ft.
Ancillary Academic Facilities (Field Plots)	5.8 acres	0.33 acre	3.1 acres	8.57 acres
Libraries	184,600 sq.ft.	-	-	184,600 sq.ft.
Staff Centre, Student Union, Concessions, etc.	37,555 sq.ft.	28,000 sq.ft.	48,000 sq.ft.	57,555 sq.ft.
Fine Arts Group	-	-	76,400 sq.ft.	76,400 sq.ft.
Sports Union, Pavilions, Boatsheds, etc.	11,085 sq.ft.	5,100 sq.ft.	29,360 sq.ft.	35,345 sq.ft.
Administration	75,050 sq.ft.	-	23,700 sq.ft.	98,750 sq.ft.
Service Buildings	34,700 sq.ft.	4,450 sq.ft.	19,000 sq.ft.	43,350 sq.ft.
Undergraduate Residential Places	1,110	-	650	1,760
Postgraduate Residential Places	180	-	100	280

### 3. 1973-75 Triennium

During this period it is anticipated that the University will undergo a further 20% increase in population. To meet the needs of this increase, and at the same time overcome the deficiencies noted in the previous phasing study, it is desirable that the developments shown on the plan opposite should be undertaken.

Some of these projects go beyond what has been nominated in the tentative building programme for the 1973-75 triennium, as stated in the latest submission to the AUC.

Desirably, construction works should include the following:

Any of the works suggested for the previous stage which have not been completed;

Projects already nominated in the tentative building programme for the 1973-75 triennium as stated in the revised submission to the AUC for the 1970-72 triennium. (It should be noted that the expansion shown opposite for the Arts-Economics area is approximately four and a half times as large as that listed in the tentative programme; and the area shown for Administration is three times as large as the Visual Aids and University Press building listed in the tentative programme.);

A combined Law-Oriental Studies extension which would link the two existing buildings. It is suggested that this work should be phased to coalesce with the extensions to Law from the previous triennium, thus enabling the complete link to be constructed as one building operation. The apparent urgency for expansion in Oriental Studies adds support to this proposal;

Further undergraduate halls of residence for 750 students. Provisionally,

**LEGEND**

- 1 MATHEMATICS
- 2 SUBMANN COLLEGE
- 3 BOTANY
- 4 FORESTRY
- 5 BSSS
- 6 ANIMAL HOUSES, SERVICES & FACILITIES
- 7 MICROBIOLOGY
- 8 UNIVERSITY STORE
- 9 MAINTENANCE DEPOT
- 10 BOILER HOUSE
- 11 SPORTS UNION
- 12 STAFF CENTRE
- 13 ARTS - ECONOMICS
- 14 ADMINISTRATION
- 15 ORIENTAL STUDIES - LAW
- 16 MENZIES LIBRARY
- 17 UNDERGRADUATE HALL OF RESIDENCE
- 18 MEDICINE



**PHASING OF DEVELOPMENT 1973 - 75**

these halls of residence have also been sited on the east and west slopes of Acton Peninsula as a continuation of the suggested development in this area (see Part II).

An extension to the University Store.

The relocation of the Maintenance Depot to the north-west corner of the site, and the conversion of the existing Maintenance Depot into ancillaries for RSBS.

Centralisation of Boiler House facilities by the construction of a new Boiler House in the service buildings group, located in the north-west corner of site, and phasing out of the existing Boiler Houses (see Part III of this report).

Virtual completion of the programme to phase out temporary buildings.

Completion of the ring road, preferably by phasing out Daley Road, constructing a new road adjacent and parallel to Clunies Ross Street, then sweeping round the south side of Burgmann College to join Ward Road. To avoid dangerous curves, a new bridge over Sullivans Creek downstream from the existing Ward Bridge would be required.

Extension of the bulk perimeter carpark established in the previous triennium, and the construction of temporary carpark between the Life Sciences area and Bruce Hall to relieve the problem of resident student parking.

The phasing out of the Central Store to permit the completion of sports fields in this area.

Continuation of general landscaping as well as that involved with new buildings and roadworks.

Summary of Works for 1973-75	Carried Forward from 1970-72	Phased Out in 1973-75	Added in 1973-75	Total Available for 10,705 Campus Population
Postgraduate Research Facilities	802,790 sq.ft.	-	76,900 sq.ft.	879,590 sq.ft.
Undergraduate Arts-based Teaching Facilities	259,300 sq.ft.	2,000 sq.ft.	127,900 sq.ft.	384,000 sq.ft.
Undergraduate Science-based Teaching Facilities	378,600 sq.ft.	10,500 sq.ft.	49,400 sq.ft.	417,500 sq.ft.
Ancillary Academic Facilities (Animal Houses, etc.)	30,090 sq.ft.	6,200 sq.ft.	16,570 sq.ft.	40,460 sq.ft.
Ancillary Academic Facilities (Field Plots)	8.57 acres	0.67 acre	0.85 acre	8.75 acres
Staff Centre, Student Union, Concessions, etc.	57,555 sq.ft.	9,555 sq.ft.	18,000 sq.ft.	66,000 sq.ft.
Fine Arts Group	76,400 sq.ft.	-	46,400 sq.ft.	122,800 sq.ft.
Sports Union, Pavilions, Boatsheds, etc.	35,345 sq.ft.	570 sq.ft.	16,200 sq.ft.	50,957 sq.ft.
Administration	98,750 sq.ft.	17,700 sq.ft.	48,450 sq.ft.	119,500 sq.ft.
Service Buildings	43,350 sq.ft.	30,350 sq.ft.	38,300 sq.ft.	57,300 sq.ft.
Undergraduate Residential Places	1,760	-	750	2,510
Postgraduate Residential Places	280	-	-	280

Summary of Works for 1973-75	Carried Forward from 1970-72	Phased Out in 1973-75	Added in 1973-75	Total Available for 10,705 Campus Population
Postgraduate Research Facilities	802,790 sq.ft.	-	76,900 sq.ft.	879,590 sq.ft.
Undergraduate Arts-based Teaching Facilities	259,300 sq.ft.	2,000 sq.ft.	127,900 sq.ft.	384,000 sq.ft.
Undergraduate Science-based Teaching Facilities	378,600 sq.ft.	10,500 sq.ft.	49,400 sq.ft.	417,500 sq.ft.
Ancillary Academic Facilities (Animal Houses, etc.)	30,090 sq.ft.	6,200 sq.ft.	16,570 sq.ft.	40,460 sq.ft.
Ancillary Academic Facilities (Field Plots)	8.57 acres	0.67 acre	0.85 acre	8.75 acres
Staff Centre, Student Union, Concessions, etc.	57,555 sq.ft.	9,555 sq.ft.	18,000 sq.ft.	66,000 sq.ft.
Fine Arts Group	76,400 sq.ft.	-	46,400 sq.ft.	122,800 sq.ft.
Sports Union, Pavilions, Boatsheds, etc.	35,345 sq.ft.	570 sq.ft.	16,200 sq.ft.	50,957 sq.ft.
Administration	98,750 sq.ft.	17,700 sq.ft.	48,450 sq.ft.	119,500 sq.ft.
Service Buildings	43,350 sq.ft.	30,350 sq.ft.	38,300 sq.ft.	57,300 sq.ft.
Undergraduate Residential Places	1,760	-	750	2,510
Postgraduate Residential Places	280	-	-	280



#### 4. 1976-78 Triennium

It is anticipated that the optimum campus population of 12,000 will be reached during this period. To meet the needs of this population the developments shown on the plan opposite are suggested.

Desirably, construction works should include the following:

Any of the works suggested for previous stages which have not been completed.

Additional undergraduate science-based teaching space in the Life Sciences Area for the anticipated increase in student enrolments in the existing departments, and for possible new departments such as Genetics, Physiology and pre-clinical Medicine.

Additional undergraduate arts-based teaching space in the Arts-Economics Area for the increased enrolments anticipated in these faculties.

Facilities in the Life Sciences Area including a Biological Library and possibly a new Research School of Natural Resources.

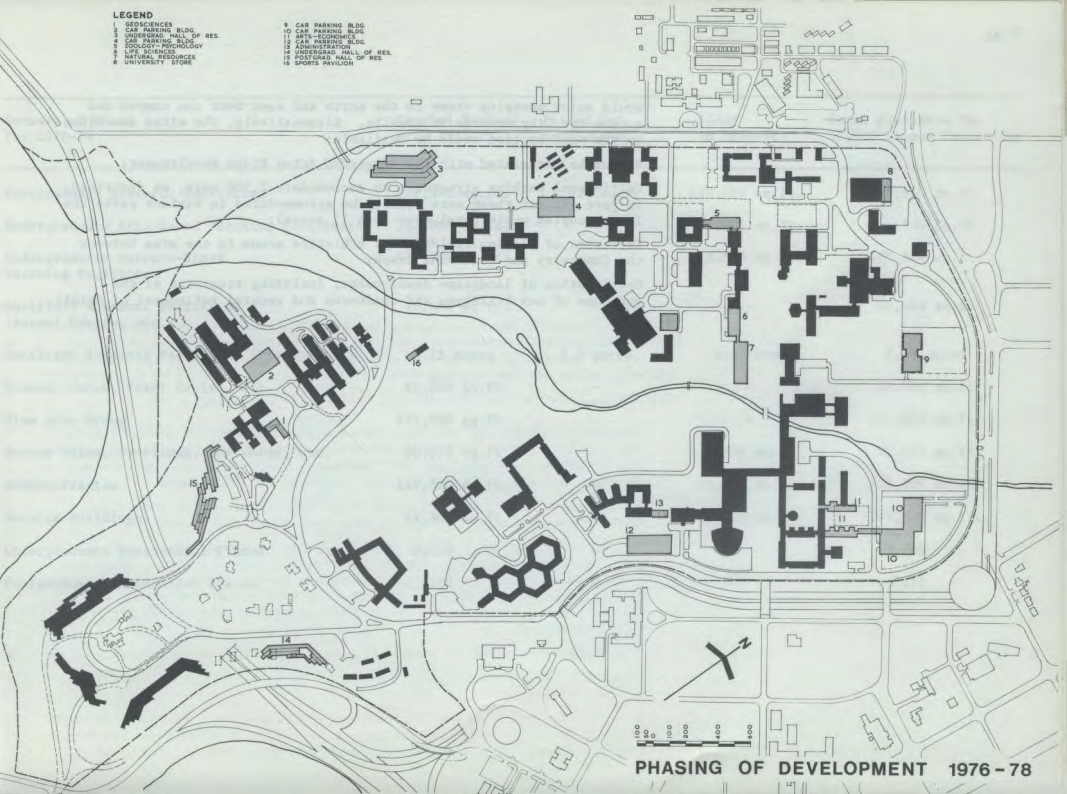
An extension of Administration facilities for the anticipated increase in staff, completing the link between the Chancery complex and the existing Union.

A further extension to the University Store.

Residential accommodation for 700 undergraduates and 290 postgraduates. Provisionally, two of these halls of residence have been sited on the east and west slopes of the Acton Peninsula to complete the 'base' of a monumental development in this area (see Part II). The remaining hall has been sited on the rising ground west of Burgmann College, where it

**LEGEND**

- 1 SCIENCES
- 2 CAR PARKING BLDG
- 3 UNDERGRAD HALL OF RES.
- 4 CAR PARKING BLDG
- 5 SOCIOLOGY PSYCHOLOGY
- 6 LIFE SCIENCES
- 7 NATURAL RESOURCES
- 8 UNIVERSITY STORE
- 9 CAR PARKING BLDG
- 10 CAR PARKING BLDG
- 11 ARTS-ECONOMICS
- 12 CAR PARKING BLDG
- 13 ADMINISTRATION
- 14 UNDERGRAD HALL OF RES.
- 15 POSTGRAD HALL OF RES.
- 16 SPORTS PAVILION



**PHASING OF DEVELOPMENT 1976-78**

would enjoy sweeping views to the north and east over the campus and across the City towards Mt Ainslie. Alternatively, the sites described in the next section would be available;

Roadworks associated with the suggested Acton Ridge development;

Multi-level parking structures to accommodate 2,500 cars, as described in Part III (if these cars were to be accommodated in surface parks the land occupied would total more than 17 acres);

Extension of playing fields, e.g. athletics arena in the area between the Chancelry and Sullivans Creek;

Continuation of landscape development, including treatment of the environs of new buildings and roadworks and general refinement of detail.

Summary of Works for 1976-78	Carried Forward from 1973-75	Phased Out in 1976-78	Added in 1976-78	Total Available for 12,000 Campus Population
Postgraduate Research Facilities	879,590 sq.ft.	5,650 sq.ft.	120,000 sq.ft.	993,940 sq.ft.
Undergraduate Arts-based Teaching Facilities	384,000 sq.ft.	-	62,000 sq.ft.	446,200 sq.ft.
Undergraduate Science-based Teaching Facilities	417,500 sq.ft.	-	68,000 sq.ft.	485,500 sq.ft.
Ancillary Academic Facilities (Animal Houses, etc.)	40,460 sq.ft.	-	-	40,460 sq.ft.
Ancillary Academic Facilities (Field Plots)	8.75 acres	1.5 acres	0.33 acre	7.58 acres
Student Union, Staff Centre, etc.	66,000 sq.ft.	-	-	66,000 sq.ft.
Fine Arts Group	122,800 sq.ft.	-	-	122,800 sq.ft.
Sports Union, Pavilions, Boatsheds, etc.	50,975 sq.ft.	-	1,700 sq.ft.	52,675 sq.ft.
Administration	119,500 sq.ft.	-	10,000 sq.ft.	129,500 sq.ft.
Service Buildings	57,300 sq.ft.	-	16,700 sq.ft.	74,000 sq.ft.
Undergraduate Residential Places	2,510	-	700	3,210
Postgraduate Residential Places	280	-	290	570

#### 5. Post-1978 (1978 + 40%)

The Site Planner's Brief includes a request 'to examine the implications of the campus population increasing by say up to 40% beyond' the optimum of 12,000. It is impossible to predict when such a population might be reached, but the plan opposite shows how the requirements of such an increase could be accommodated.

Desirably, construction works should include the following:

New research schools; in the Life Sciences and Physical Sciences Areas, for new disciplines such as Architecture, Engineering Science, Agriculture and Veterinary Science. On the Peninsula, Earth Sciences and Mathematical Sciences are amongst possibilities that have been mentioned.

Completion of the suggested Acton Ridge development which also might accommodate new research schools (see Part II of this report).

Proportional increases in the facilities for undergraduate science-based and arts-based teaching. (It should be noted that additional space for undergraduate teaching appears unnecessary in the Physical Sciences area, as the building area carried forward from 1978 would provide 266 sq.ft. per EFTS which is in excess of the average rate of 248 sq.ft. per EFTS - (see Appendix 3).

Proportional increase in Administration space.

Provision for increasing the capacity of Menzies Library to 2 million volumes or more.

Residential accommodation for 1,290 undergraduates and 230 postgraduates. Provisionally, these halls have been sited in three areas: on the west slopes of the Glade facing east towards University House; north of

**LEGEND**

- |                                   |                              |
|-----------------------------------|------------------------------|
| 1 RESEARCH TOWER                  | 12 ARTS-ECONOMICS            |
| 2 CAR PARKING BLDG.               | 13 ADMINISTRATION            |
| 3 SCIENCE TOWER                   | 14 ORIENTAL STUDIES          |
| 4 UNIVERSITY STORE                | 15 MENDES LIBRARY            |
| 5 MAINTENANCE AND GARDENERS DEPOT | 16 CAR PARKING BLDG.         |
| 6 BOILER HOUSE                    | 17 UNDERGRAD. HALL OF RES.   |
| 7 CAR PARKING BLDG.               | 18 ACTION MIDDLE DEVELOPMENT |
| 8 ENGINEERING SCIENCE             | 19 SAILING BOAT HOUSE        |
| 9 ARCHITECTURE                    | 20 CAR PARKING BLDG.         |
| 10 UNDERGRAD. HALL OF RES.        | 21 POSTGRAD. HALL OF RES.    |
| 11 CAR PARKING BLDG.              |                              |



**PHASING OF DEVELOPMENT 1978 + 40%**

Geology, close to undergraduate departments and outlooking the landscaped valley of Sullivans Creek; and on the tongue of land immediately south of the Academy of Science.

Proportional extensions to the service buildings group (University Store, Maintenance and Gardeners' Depots, and Central Boiler House).

A boathouse for sailing craft on the shores of Lake Burley Griffin.

Roadworks associated with new buildings.

Five car parking structures to accommodate an additional 2,000 cars.

Landscaping associated with new buildings and roadworks.

PHASING OF DEVELOPMENT 1978 - 1981

The Planner's brief includes a forecast of the population of the city of Canberra in 1981, based on a population of 150,000. It is necessary to predict what such a population would require, but the plan opposite shows that the requirements of such a population could be accommodated.

Specifically, consideration will be given to the following:

New research buildings in the Life Sciences, Physical Sciences Areas, for use by disciplines such as Architecture, Engineering, Science, Agriculture and Forestry, Law, and the Peninsula, Earth Sciences and Mathematical Sciences. The new buildings to be built are shown on the plan.

Extension of the existing Ridge development which also might accommodate the new schools (see Part 2 of this report).

Provision of new buildings for undergraduate and extension-based courses.

Provision of new buildings for research in the Physical Sciences, and the Life Sciences.

Provision of new buildings for research in the Life Sciences, and the Life Sciences.

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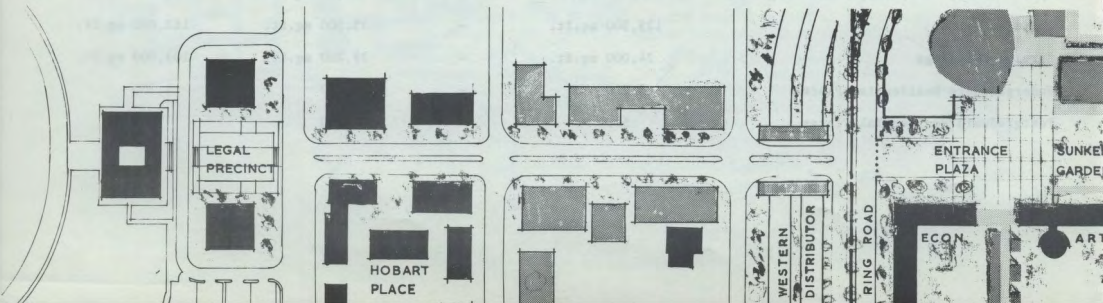
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Provision of new buildings for research in the Life Sciences, and the Life Sciences.

Provision of new buildings for research in the Life Sciences, and the Life Sciences.

Area	Approx. Area (sq. ft.)	Description
WESTERN DISTRIBUTOR	125,000 sq. ft.	Large rectangular building, possibly a warehouse or distribution center.
HOBART PLACE	125,000 sq. ft.	Complex of several interconnected rectangular buildings.
LEGAL PRECINCT	125,000 sq. ft.	Enclosed area containing several smaller buildings.
ENTRANCE PLAZA	125,000 sq. ft.	Open area with a circular feature, likely a public square.
ECON	125,000 sq. ft.	Large rectangular building, possibly a commercial or office space.
ART	125,000 sq. ft.	Large rectangular building, possibly an art gallery or museum.



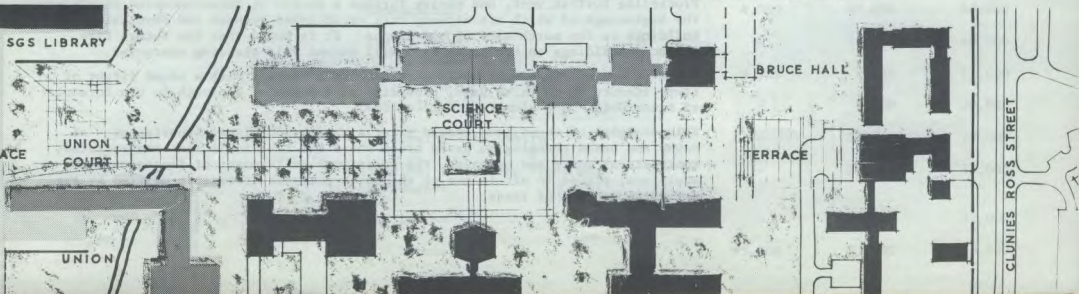


## University Avenue

The proposal to develop University Avenue as the main spine of undergraduate activities has been referred to already as one of the main features of the plan. The rows of well-grown trees make this one of the most attractive parts of the campus. It coincides, happily, with the area of greatest pedestrian movement within the University. It is therefore proposed to close the Avenue to vehicular traffic and re-form it as a series of landscaped courtyards.

University Avenue also provides the closest link to the city and this link should be retained and highlighted, to emphasise City-University relationships. Planning studies of the undeveloped area between the University and the city centre are being carried out by NCDC; the University's planners are being consulted on aspects of common concern. It is too early to say whether University Avenue will continue to provide a functional entrance in the ultimate pattern or only a visual connection but in either case it can be expected that a fine open vista will remain from the Legal Precinct, extending westwards between commercial buildings and crossing a merged distributor road, before entering the University site.

There has been some debate as to whether this vista should be allowed to continue uninterrupted through the University. Bruce Hall is a remote and small-scale terminal, almost invisible from the Legal Precinct, whereas a building lying across the Avenue would identify the University more effectively in this formal view. However, in the present plans the vista is left uninterrupted, the entrance to the University being marked by a large arrival plaza.



This plaza has been thought of as the University's formal entrance. Around it and close to it would be located facilities with which the University goes out to meet the community - a Fine Arts Group of auditoria for entertainments and public lectures, gallery and museum areas for permanent collections and changing exhibitions, an information office where visitors can be oriented, etc. Well-defined pedestrian walks would give direct access to bulk parking areas nearby. Being close to the centre of gravity of the University population (which falls appropriately on the SGS Library), all these facilities would be readily accessible to the majority of students and staff.

Moving west along a level concourse between the Fine Arts Group and the Haydon-Allen building one reaches a terrace across the Avenue, at a point where the ground has fallen away, enabling commercial concessions to be constructed beneath it. The terrace would connect the SGS Library to the Arts-Economics group. The lower level would provide an alternative wet-weather route past the shops and banks to the Library and Fine Arts group. The northern end of the terrace would connect directly with the new Student Union which is proposed for this central location, to overcome the remoteness and inadequacy of the existing Union building.

The new Union is envisaged as a three-level building the upper floors of which span across Sullivans Creek valley to connect with a future Sports Union on the opposite bank. The main rooms would enjoy splendid views up and down the valley and into the great court which can be formed on the present carpark between the Union and the SGS Library. Being accessible at either end, the building would literally bridge the gap between sciences and humanities.

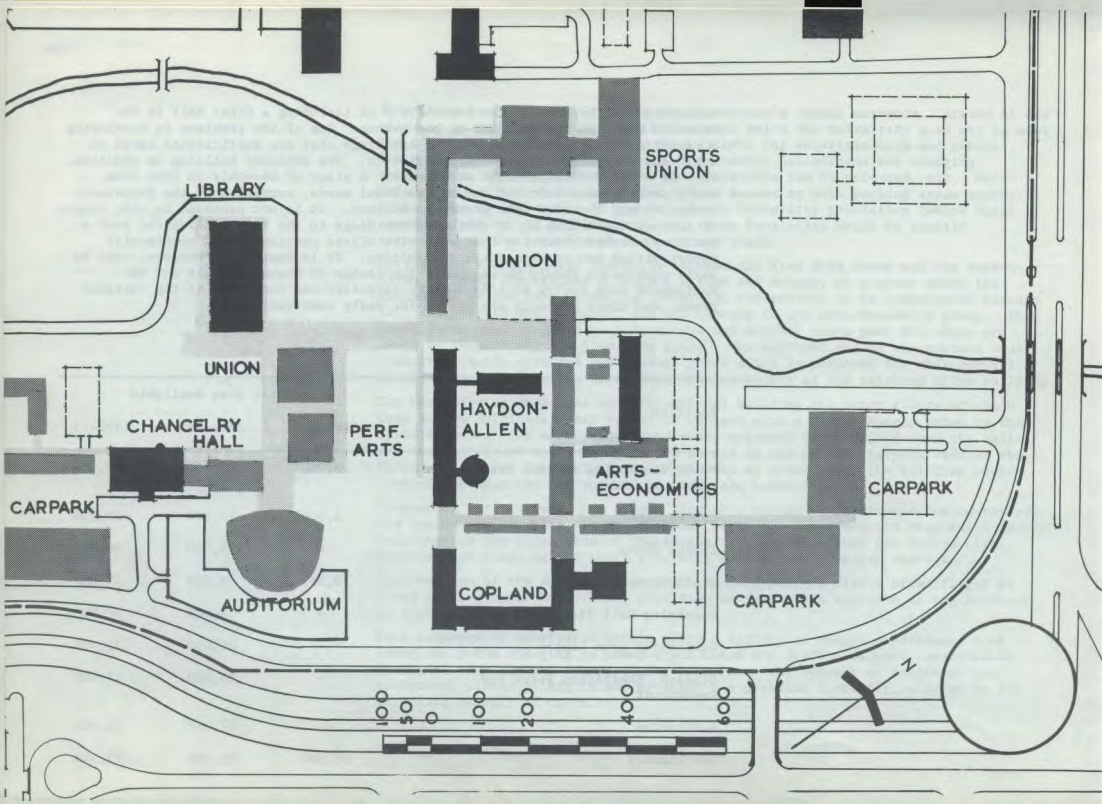
Proceeding further west, one passes through a series of interconnected courtyards, the beginnings of which are already well established between the Physical Sciences buildings on the north side of the Avenue. It is hoped that the future Life Sciences buildings on the south side will extend this pleasing character.

The west end of the Avenue would terminate on a terrace with a broad flight of steps leading up to Daley Road, providing an impressive approach to the forecourt of Bruce Hall.

This sequence of courtyards should offer a variety of visual experiences - of lawns and paths changing to paved areas where the traffic is most concentrated; contrasts of scale and openness, the occasional enlivenment of fountains and sculpture, places to sit in sun or shade - a pleasant diversity, unified by the pervading canopy of trees.

Reference must be made to the possibility of including a Great Hall in the entrance plaza at the east end of the Avenue. One of the problems in developing a significant entrance is in finding buildings that are sufficiently large in scale and striking in their characteristics. One dominant building is required, such as a Great Hall or large auditorium. A place of assembly in this area would satisfy many cultural and recreational needs, serving both the University community and the city with great convenience. It is not proposed in this report to further the debate as to whether Acton Ridge is the better place for such a facility, beyond observing that each site offers particular and spectacular opportunities for architectural composition. It is important, however, that an early conclusion should be reached. The design of Chancelry Hall and the Performing Arts Centre will do much to establish the character of the entrance plaza, and these projects are listed for early construction.

Facility	Total Area Available		
	1967-69	1970-72	1973-75
Union (including Student Health and Counselling)	23,700	48,000	55,000
Concessions	4,300	10,000	10,000
Sports Union	-	25,000	40,000
Staff Centre	9,555	9,555	11,000
Chancelry Hall (including link)	-	9,400	20,800
Performing Arts Centre	-	20,000	25,000
Studios, Exhibition Space and Restaurant	-	15,000	45,000
Auditorium	-	32,000	32,000
SGS Library	95,500	95,500	95,500



## Development Of The Arts-Economics Group

### 1. Location

The Arts-Economics group is located in the north-east corner of the site. It is bounded on the north by Boldrewood Street, on the east by Kingsley and Childers Streets, on the south by University Avenue, and on the west by Sullivans Creek. It is thus close to the residential area of Turner and the commercial area of the city.

### 2. Population

The Arts and Economics faculties are expanding rapidly. By 1978 their enrolments will be two and a half times the present figure (see Appendix 2). Fifty-five per cent of the undergraduate population will be concentrated in this part of the campus.

### 3. Planning Objectives

The location and anticipated population of the Arts-Economics group make it one of very great importance. Its present negative character is the more regrettable in that it is the working environment for over half of the undergraduate students.

The major planning objectives are to advance from a high-school environment to one of adult scale and some nobility of character, reflecting the richness and diversity of the functions it accommodates. This should be achieved with a sense of completeness at each stage of the very substantial expansion that must be faced.

Externally, there should be strong family ties in the design of the component buildings, and sympathetic relationships with adjoining groups. Internally there is scope for considerable diversity, for contrasts of scale and atmosphere to be enjoyed as one moves between the courtyards following a choice of covered and open routes.

### 4. Phasing of Development

#### a) The Existing Situation

The present development comprises a group of two-, three- and four-storey blocks, including the Haydon-Allen and Copland buildings which surround a huge courtyard. Temporary buildings nearby in Childers Street are also used for teaching

purposes. Car parks located close to the buildings include a large temporary park which accentuates a monotony that is only partly relieved by pleasant landscaping at the eastern end.

b) 1970-72 Triennium

Developments proposed for this triennium are:

Construct a building of 38,200 square feet\* as applied for in the 1970-72 submission to the AUC but relocated as shown in the plan to provide the first stage of a concourse link between the parking area, future teaching buildings and the entrance plaza;

Phase out Childers Street buildings to make way for the western distributor in the proposed city road system;

Construct the University perimeter ring road with service spurs to the existing buildings and the proposed new Union;

Resume Kingsley and Hutton Streets and close University Avenue to vehicular traffic;

Construct surface car parks for 570 cars;

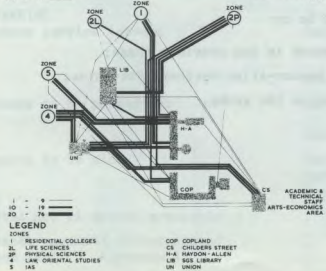
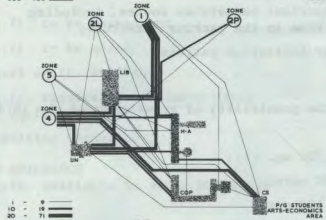
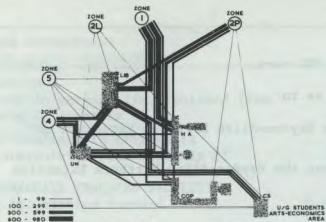
Phase out existing car parks to make way for new buildings.

The effect of these developments will be to:

divide the existing courtyard into two, completing the Copland court and humanising the scale of the Haydon-Allen court;

provide covered access along an important pedestrian traffic route

\* It should be noted that the submission to the AUC for the 1970-72 triennium was made on the basis of an optimum enrolment of 3,000 undergraduates in Arts and Economics. This figure has now been revised to 4,000 students in the Site Planner's Brief. Consequently there will be a deficiency in the available teaching space (calculated on the basis of 90 sq. ft. per EFTS) at the end of this triennium. If these assumptions are correct, a very large building programme should be undertaken at the beginning of the following triennium to overcome the deficiency.



between the parking area and the entrance plaza at University Avenue; establish the principles of the traffic pattern, as outlined in Part III under 'Traffic'.

c) 1973-75 Triennium

Developments proposed for this triennium are:

Construct buildings totalling 97,400 sq. ft. to overcome the deficiency from the previous triennium, as noted above, as well as to provide for the continuing increase in enrolments;

Phase out the Drill Hall to make way for car parking;

Construct surface car park\* for an additional 200 cars.

The effect of these developments will be to:

complete the enclosure of Haydon-Allen court;

create a contrast in scale and a punctuation mark in the composition by providing most of the additional space in a 12-storey tower building at the west of the group overlooking Sullivans Creek;

bring the centre of gravity of population within the group closer to the Union, Library, and other central facilities.

d) 1976-78 Triennium

It is anticipated that the optimum campus population of 12,000 will be reached by 1978. Developments proposed for this triennium are:

Construct buildings totalling 62,000 sq. ft.;

Phase out surface car parks for 300 cars to make way for new buildings;

\* It should be noted that by the end of this phase there will be an excess of parking spaces over the estimated needs of the staff and non-resident student population of the Arts and Economics faculties and users of the Union and SGS Library. The excess will provide parking for patrons of the Performing Arts Centre and the proposed University Auditorium.

Construct a parking structure for 800 cars.

The effect of these developments will be to:

- complete a small court between the Haydon-Allen Northern Extension and the Phase 3 buildings;
- create two open-ended courts between the Haydon-Allen Northern Extension and the Copland Lecture Theatre;
- complete the linking of all buildings;
- extend covered access along all important pedestrian routes, including an elevated link over the service road to the parking structure;
- provide more car-parking spaces for Auditorium patrons.

e) 1978 + 40%

Further expansion provisions to meet the possibility of growth beyond the 1978 figures include:

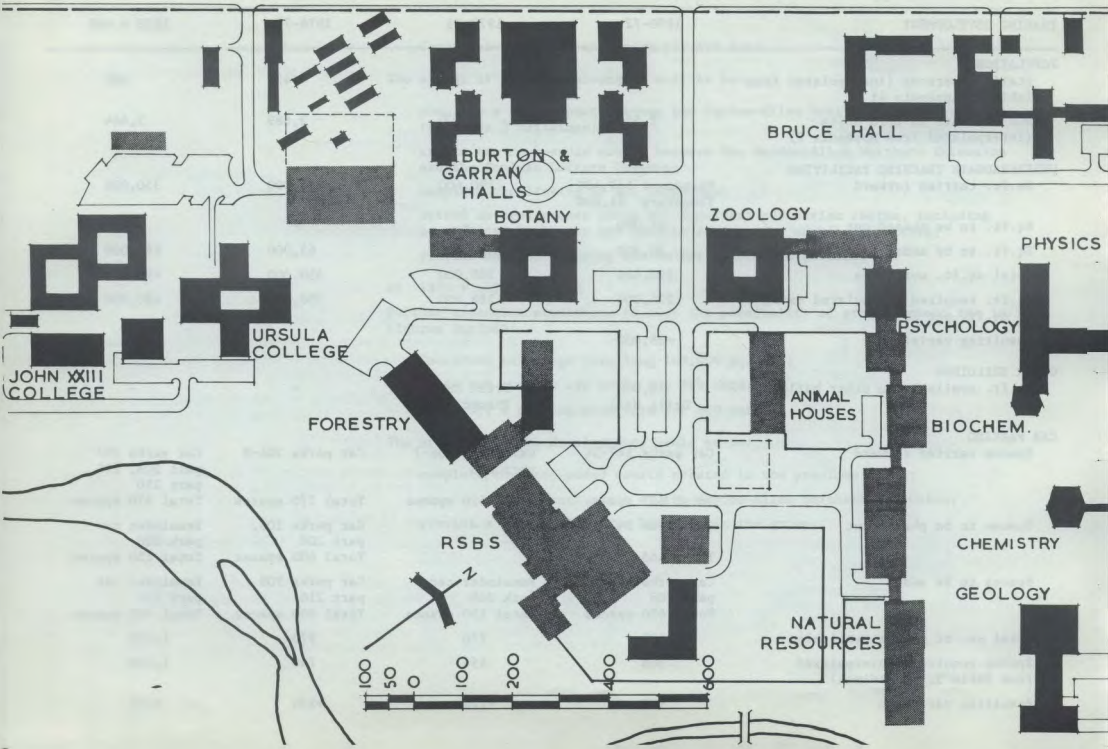
- Construct buildings totalling 140,000 sq. ft.;
- Phase out surface car parks for 170 cars;
- Construct a parking structure for 400 cars.

The effect of these developments would be to:

- complete the open-ended courts created in the previous phase;
- create another court north of the Haydon-Allen Northern Extension;
- provide a second high-rise building in the group.



PHASING DEVELOPMENT	1970-72	1973-75	1976-78	1978 + 40%
<b>POPULATION</b>				
Staff in persons (interpolated from Table 2, Appendix 4)	252	338	425	595
SGS Students in EFTS units (interpolated from Appendix 2)	2,510	3,200	3,889	5,444
<b>UNDERGRADUATE TEACHING FACILITIES</b>				
Sq.ft. carried forward	Permanent 152,400 Temporary 41,000	190,600	288,000	350,000
Sq.ft. to be phased out	41,000	-	-	-
Sq.ft. to be added	38,200	97,400	62,000	140,000
Total sq.ft. available	190,600	288,000	350,000	490,000
Sq.ft. required (calculated using 90 sq.ft. per EFTS )	226,000	288,000	350,000	490,000
Resulting variation	-35,000	-	-	-
<b>OTHER BUILDINGS</b>				
Sq.ft. available in other buildings	13,000 Drill Hall	Drill Hall Phased out	-	-
<b>CAR PARKING</b>				
Spaces carried forward	Car parks 147-54	Car parks 206-7 part 208	Car parks 206-8	Car parks 207 part 208, 209 part 210
	Total 465 spaces	Total 620 spaces	Total 770 spaces	Total 970 spaces
Spaces to be phased out	Car parks 147-54	-	Car parks 206, part 208	Remainder car park 208
	Total 465 spaces		Total 600 spaces	Total 150 spaces
Spaces to be added	Car parks 206-7, part 208	Remainder car park 208	Car parks 209 part 210	Remainder car park 210
	Total 620 spaces	Total 150 spaces	Total 800 spaces	Total 400 spaces
Total no. of spaces available	620	770	970	1,220
Spaces required (interpolated from Table 3, Appendix 4)	568	654	740	1,070
Resulting variation	+52	+116	+230	+150



BURTON &  
GARRAN  
HALLS

BRUCE HALL

BOTANY

ZOOLOGY

PHYSICS

URSULA  
COLLEGE

PSYCHOLOGY

JOHN XXIII  
COLLEGE

FORESTRY

ANIMAL  
HOUSES

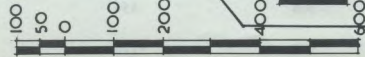
BIOCHEM.

RSBS

CHEMISTRY

GEOLOGY

NATURAL  
RESOURCES



## Development of the Life Sciences Group

### 1. Location

The Life Sciences group of disciplines is to be developed within the area defined by University Avenue to the north, Sullivans Creek to the east, and Daley Road to the west. On the south it is bounded by a line connecting Forestry and Boiler House No 2.

### 2. Population

These disciplines are likely to experience rapid expansion. By 1978 there will be three and a half times as many students enrolled as there were in 1968. The staff increase will be only fractionally smaller.

### 3. Planning Objectives

The major planning objectives are to develop this neglected part of the campus to a high standard, taking advantage of its proximity to existing Life Science departments and to the undergraduate centre.

The heart of the development is a Life Sciences Court, in which RSBS will be the dominant building for some time. Later additions will include a central biological library, additional teaching buildings and perhaps a Research School of Natural Resources. The site allocations for these buildings should enable them to be appropriately identified, as well as contributing to a coherent group development.

Particular attention must be paid to the provision of adequate areas for plots, glasshouses and similar ancillaries, and to screen from the main views and approaches all that are unsightly.

The presence in this area of Boiler House No 2 and the Maintenance Depot is inhibiting and it is hoped they will be relocated on more appropriate sites.

### 4. Phasing of Development

#### a) The Existing Situation

At present only three departments - Botany, Zoology and Forestry - are located in this area. Biochemistry, Microbiology and RSBS are located elsewhere on the campus in temporary buildings. The Maintenance Depot and Boiler House No 2 are situated in the southern part of the area.

## b) 1970-72 Triennium

Developments proposed for this triennium are:

Construct RSBS Stage I, Psychology Stage II and Biochemistry Stage I as applied for in the 1970-72 submission to the AUC;

Construct a services and facilities area, also requested in the 1970-72 submission, but relocated north of the existing compound, which will be phased out in the next triennium to make way for an avenue approach to Life Sciences Court;

Remove the old Magnetometer building;

Construct a new spur road running south from Daley Road to serve RSBS.

Construct a temporary bulk carpark between Bruce Hall and Psychology Stage I to partially meet the needs of Life Sciences and the existing undergraduate halls of residence. The apparent deficiency of car-parking spaces will be balanced by an excess in the Physical Sciences area;

Additional local carparks to serve new buildings;

Phase out the section of Sullivans Creek between University Avenue and the Maintenance Depot, retaining access to the No 2 Boiler House and compound from the south;

Establish screened plot space for RSBS and Biochemistry;

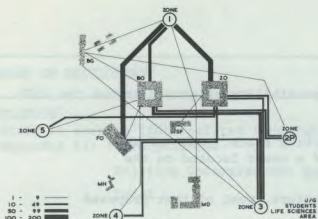
Establish an avenue of trees down either side of the proposed new spur road, and extensive screen planting.

## c) 1973-75 Triennium

Developments proposed for this triennium are:

Construct RSBS Stage II, Biochemistry Stage II, Microbiology Stage I and extend Botany, Forestry and the Services Compound as nominated in the tentative capital building programme for the 1973-75 triennium;

Phase out the existing Services and Facilities Compound, the No 2 Boiler House and the Maintenance Depot. The Maintenance Depot



building might be retained and converted into ancillary facilities for RSBS;

Provide screened plot space for Forestry and Microbiology;

Construct an extension of the spur road across Burton Hall car-park to meet Clunies Ross Street, and phase out Daley Road;

Extend bulk car parks to replace Burton Hall parking lost;

Additional local parking to serve new buildings.

#### d) 1976-78 Triennium

It is anticipated that the optimum campus population of 12,000 will be reached by 1978. Developments suggested for this triennium are:

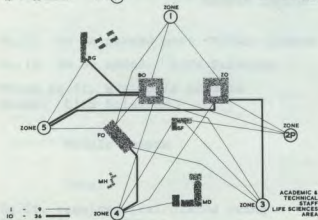
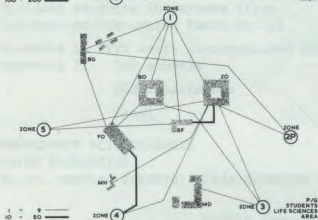
Construct facilities for the proposed Centre for Natural Resources;

A Biological Sciences Library in the Life Sciences Court, located on the end of the axis of the spur road and screening RSBS ancillaries;

An additional 68,000 sq.ft. of flexible undergraduate teaching space to meet the needs of the anticipated student enrolment and to permit the establishment of such departments as Genetics, Physiology, Anatomy and Pharmacology, some of which might be related to a new course in Medicine;

Phase out the surface carparks between Zoology and Bruce Hall and construct a 500-car parking structure north of Ursula College to meet the needs of the resident students in the existing halls and part of the bulk requirement for Life Sciences. The remainder of the bulk requirement would be met by the excess in the Physical Sciences area;

The apparent deficiency in plot space must be met off-campus or by integrally designing such facilities as glasshouses within or on the roofs of buildings.



#### LEGEND

##### ZONES

- 1 RESIDENTIAL COLLEGES
- 2 PHYSICAL SCIENCES
- 3 ARTS, ECONOMICS
- 4 LAW, ORIENTAL STUDIES
- 5 IAS

- BG BOTANY GLASSHOUSES
- BO BOTANY
- FO FORESTRY
- MD MAINTENANCE DEPOT
- MH MAGNET TOMETER HUT
- SP SHARED FACILITIES
- ZD ZOOLOGY

e) 1978 + 40%

Further expansion provisions to meet the possibility of growth beyond the 1978 figures include:

Construct up to 268,000 sq.ft. of teaching space. Some of this space could be provided in the form of a tower located on the 'Winston' axis, in Life Sciences Court;

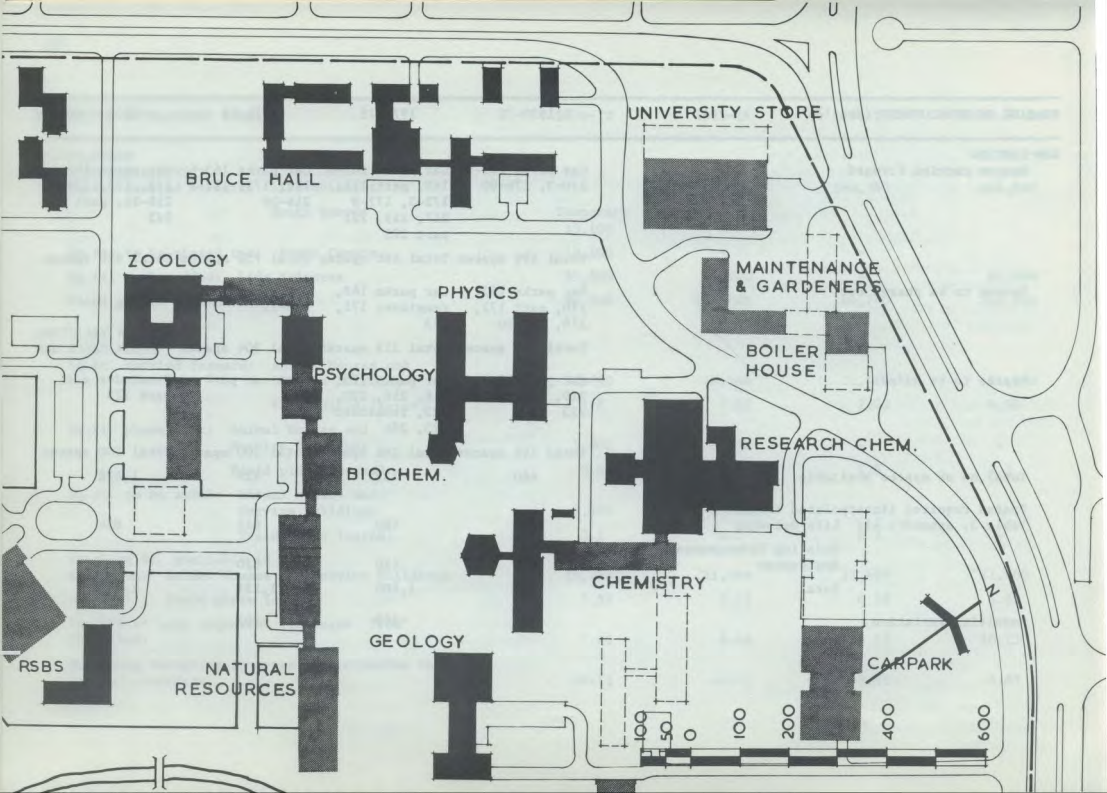
Construct another 500-car parking structure, west of that proposed for the 1976-78 triennium.

PHASING OF DEVELOPMENT	1970-72	1973-75	1976-78	1978 + 40%
<b>POPULATION</b>				
Staff in persons (interpolated from Table 2, Appendix 4): Life Sciences	392	551	710	1,042
Existing Undergraduate Residences	50	50	50	50
Total	442	601	760	1,092
Resident students in persons (from Information-Discussion Paper no 25)	1,190	1,190	1,190	1,190
Students in EFTS units (interpolated from Appendix 2): IAS schools	106	163	220	540
SGS departments	735	833	1,131	2,284
Total	841	996	1,351	2,824
<b>UNDERGRADUATE SCIENCE-BASED TEACHING FACILITIES</b>				
Sq.ft. carried forward: Life Sciences	Permanent 115,000	Permanent 181,000	230,400	298,400
Middle Campus	Temporary 16,750	Temporary 10,500		
Sq.ft. to be phased out: Middle Campus	6,250	10,500	-	-
Sq.ft. to be added: Life Sciences	66,000	49,400	68,000	268,600
Total sq.ft. available in this phase: Life Sciences	Permanent 181,000	230,400	298,400	567,000
Middle Campus	Temporary 10,500	-	-	-
Total	191,500	230,400	298,400	567,000
Sq.ft. required (calculated using 248 sq.ft. per EFTS )	182,500	207,000	281,000	567,000
Resulting variation	+9,000	+23,400	+17,400	-

PHASING OF DEVELOPMENT (Cont'd)	1970-72	1973-75	1976-78	1978 + 40%
<b>POSTGRADUATE RESEARCH FACILITIES</b>				
Sq.ft. carried forward: Life Sciences	-	95,500	164,740	164,740
South Campus	Temporary 13,100			
Sq.ft. to be phased out: South Campus	13,100	-	-	-
Sq.ft. to be added: Life Sciences	95,500	69,240	-	80,000
Total sq.ft. available	95,500	164,740	164,740	244,740
<b>ANCILLARY BUILDINGS AND FIELD PLOTS</b>				
Sq.ft. carried forward: Animal Houses and Service Buildings	12,760	19,260	21,460	21,460
Field plots (acres)	4.8	7.57	7.75	6.58
Sq.ft. phased out: Animal Houses and Service Buildings	1,900	6,200	-	-
Field plots (acres)	0.33	0.67	1.5	2.3
Sq.ft. to be added: Animal Houses and Service Buildings	8,400	8,400	-	-
Field plots (acres)	3.1	0.5	0.3	-
Total sq.ft. available in this triennium: Animal Houses and Service Buildings	19,260	21,460	21,460	21,460
Field plots (acres)	7.57	7.75	6.58	4.28
Field plot area requested (in acres from 2672/1968)	7.46	8.46	10.13	10.13
Resulting variation in acres (deficiencies to be located elsewhere)	+0.11	-0.71	-3.55	-5.85



PHASING OF DEVELOPMENT (Cont'd)	1970-72	1973-75	1976-78	1978 + 40%
<b>CAR PARKING</b>				
Spaces carried forward	Car parks 163-8 170-3, 176-80	Car parks 163-6 168, part 171, 172-3, 177-8 217, 219, 221 part 223	Car parks 163-6 172, 175, 177-8 216-24	Car parks 163-5, 172, 175, 177-8, 218-24, part 225
	Total 695 spaces	Total 660 spaces	Total 732 spaces	Total 928 spaces
Spaces to be phased out	Car parks 167, 170, part 171, 176, 179-80	Car parks 168, remainder 171, 173	Car parks 166, 216-17	-
	Total 230 spaces	Total 214 spaces	Total 304 spaces	
Spaces to be added	Car parks 217, 219, 221, part 223	Car parks 175, 216, 218, 220, 222, remainder 223, 224	Part car park 225	Remainder car park 225
	Total 195 spaces	Total 286 spaces	Total 500 spaces	Total 500 spaces
Total no of spaces available	660	732	928	1,428
Spaces required (interpolated from Table 3, Appendix 4): Life Sciences	347	480	611	854
Existing Undergraduate Residences	620	620	620	620
Total	967	1,100	1,231	1,474
Resulting variation	-307	-368	-303	-46



BRUCE HALL

UNIVERSITY STORE

ZOOLOGY

PHYSICS

MAINTENANCE & GARDENERS

PSYCHOLOGY

BOILER HOUSE

BIOCHEM.

RESEARCH CHEM.

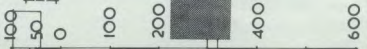
CHEMISTRY

RSBS

NATURAL RESOURCES

GEOLOGY

CARPARK



N

## Development of the Physical Sciences and Service Buildings Groups

### 1. Location

The existing Physical Sciences departments of Physics, Chemistry and Geology, and the Research School of Chemistry are located in an area towards the north-west corner of the site bounded by Boldrewood Street to the north, Sullivans Creek to the east, University Avenue to the south and Daley Road to the west.

The existing service buildings do not fall into a single geographical group. The Maintenance Depot and the No 2 Boiler House are located in the Life Sciences, the No 1 Boiler House, some gardeners' facilities and the Central Store are located in the Peninsula area and more gardeners' facilities are located in the Middle Campus area.

### 2. Population

It is anticipated that the population of the Physical Sciences group will have doubled by 1978. A 20% increase in the service buildings staff is anticipated by 1978.

### 3. Planning Objectives

This group is already well developed and its pleasing character should be retained in any further developments, and merged into the substantial adjoining developments proposed around it. Pedestrian walkways should be more clearly defined within the group and extend to the Union and Sports Union and, via the proposed University Avenue courtyards, to Life Sciences and other parts of the campus. The main lines of movement to be provided for are shown in the traffic diagrams on the next page.

New roads and buildings (including parking structures) should be arranged to give interesting views of important parts of this area, especially of RSChem.

University Service Buildings are included here because it is proposed that they should be progressively concentrated in this area, at the north-west corner of the campus. They can lie between the ring road and public roads, so that inward deliveries do not add to internal traffic volumes. The main planning objective should be to achieve a cohesive group of buildings arranged to face inwards into service compounds, the outward appearance being bland and noncommittal. Boiler stacks will be the greatest challenge, the consulting engineers have drawn attention to those at Macquarie University and York University in the UK where stacks have been designed sculpturally with some success.

#### 4. Phasing of Development

##### a) The Existing Situation

The undergraduate Physical Sciences buildings - Physics, Chemistry and Geology - face the north side of University Avenue and form a pleasant court beside it. The Research School of Chemistry is located north of these buildings forming the north end of a courtyard between Physics and SGS Chemistry.

The service buildings, as noted above, are scattered over the campus. Some of the buildings are temporary structures. It is suggested that permanent buildings, at present occupied by service functions, be converted for other use.

##### b) 1970-72 Triennium

Developments proposed for this triennium include:

Construct an extension to SGS Chemistry as applied for in the 1970-72 submission to the AUC;

Construct Gardeners' Facilities also requested in the 1970-72 submission to the AUC but relocated in the north-west corner of the campus to form the first stage of a suggested service buildings group;

Construct the first stage of a suggested new University Store to overcome an apparent deficiency of storage space;

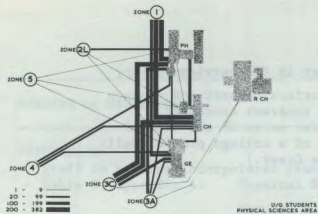
Remove temporary buildings occupied by Gardeners' Facilities and Stores;

Construct a section of the proposed University ring road along the northern perimeter of the campus and swinging south to join Daley Road, thus providing an island with access to both the public and University road systems for the proposed service buildings group;

Closure of Science Road to vehicles (except emergency traffic) and its development as a pedestrian precinct;

Phase out part of North Road and construct a service spur road to serve the Geology Building;

Construct a surface parking area north of the Chemistry and Geology buildings with access from North Road.



## c) 1973-75 Triennium

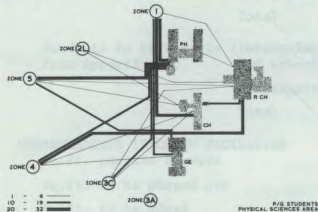
Developments proposed for this triennium include:

Construct an extension to the suggested University Store;

Phase out the existing Maintenance Depot and replace with a new building in the service buildings group. (It is suggested that the existing Maintenance Depot buildings might be retained and converted as ancillary facilities for RSBS.);

Phase out the existing No 1 and No 2 Boiler Houses and replace by a proposed new Boiler Plant in the service buildings group;

Phase out Daley Road and construct a further section of the proposed ring road to join Clunies Ross Street north of Bruce Hall;  
Extend the bulk surface car park north of the Physical Sciences group.

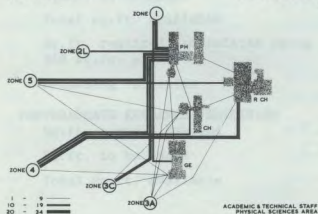


## d) 1976-78 Triennium

It is anticipated that the optimum campus population of 12,000 will be reached by 1978. Developments proposed for this triennium include:

Construct extensions to the proposed University Store and Boiler Plant;

Phase out part of the bulk surface carpark and construct a parking structure. (The apparent excess of parking spaces will provide for users of the Sports Union and other central facilities located nearby.)



## e) 1978 + 40%

Further expansion provision to meet the possibility of growth beyond 1978 include:

Construct buildings for possible new schools such as Architecture and Engineering Science;

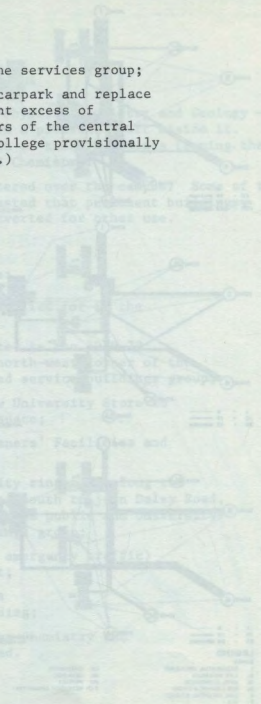
## LEGEND

ZONES  
1 RESIDENTIAL COLLEGES  
2 LIFE SCIENCES  
3A ARTS, ECONOMICS  
3C RES LIBRARY & UNION  
4 LAW ORIENTAL STUDIES  
5 LABS

CH CHEMISTRY  
GE GEOLOGY  
PH PHYSICS  
R/CH RESEARCH CHEMISTRY

Proportional extension to the buildings in the services group;  
 Phase out the remainder of the bulk surface carpark and replace  
 with another parking structure. (The apparent excess of  
 parking spaces will provide not only for users of the central  
 facilities but also for the residents of a college provisionally  
 sited between North Road and Sullivans Creek.)

Construct a surface parking area north of the existing  
 Geology buildings with access from North Road.



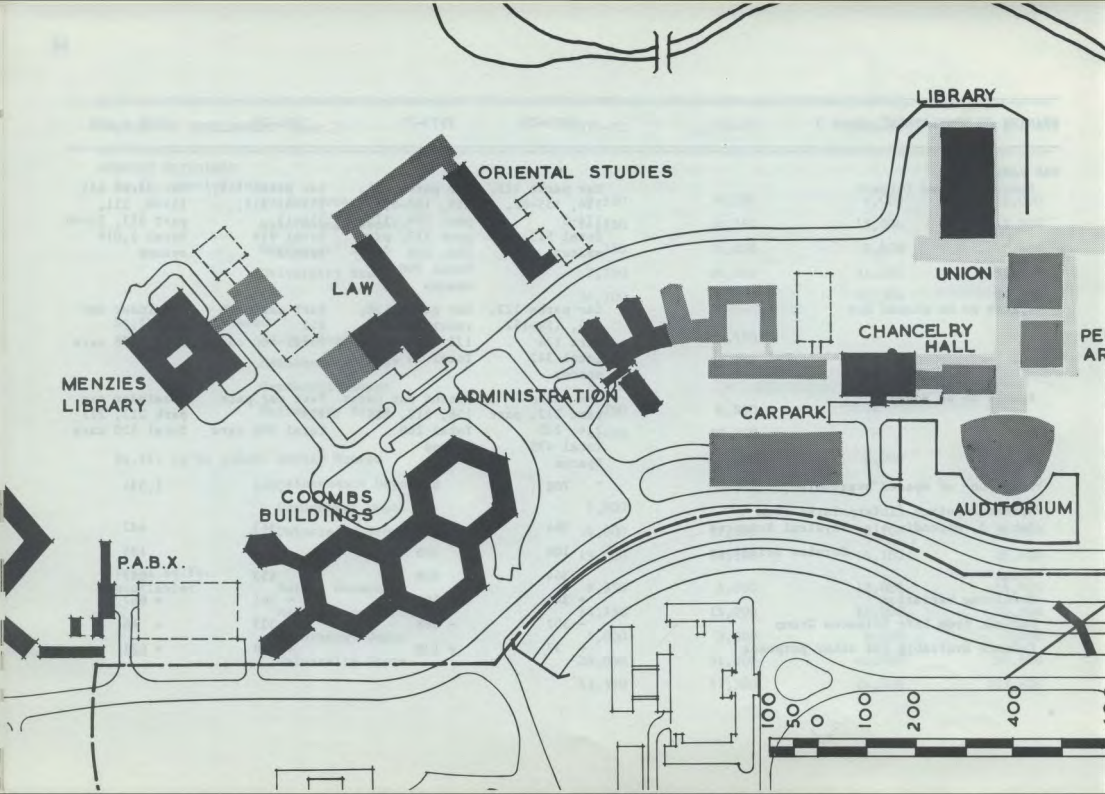
Symbol	Description
(Circle with number)	Building
(Square)	Parking space
(Line)	Proposed road
(Dashed line)	Existing road
(Shaded area)	Proposed building footprint
(Dotted line)	Proposed boundary
(Arrow)	Access point

PHASING OF DEVELOPMENT	1970-72	1973-75	1976-78	1978 + 40%
<b>POPULATION</b>				
Staff in persons interpolated from Table 2, Appendix 4:				
Physical Sciences	383	454	525	735
Service Buildings	113	119	125	175
Total	496	573	650	910
Students in EFTS units (interpolated from Appendix 2):				
IAS schools	99	150	200	400
SGS departments	362	433	503	704
Total	461	583	703	1,104
<b>UNDERGRADUATE TEACHING FACILITIES</b>				
Sq.ft. carried forward	163,300	187,100	187,100	187,100
Sq.ft. to be phased out	-	-	-	-
Sq.ft. to be added	23,800	-	-	-
Total sq.ft. available	187,100	187,100	187,100	187,100
Sq.ft. required (calculated using 248 sq.ft. per EFTS)	81,500	107,500	125,000	174,500
Resulting variation	+105,600	+ 79,600	+ 62,100	+ 12,600
<b>POSTGRADUATE RESEARCH FACILITIES</b>				
Sq.ft. carried forward	100,700	100,700	100,700	100,700
Sq.ft. to be added	-	-	-	80,000
Total sq.ft. available	100,700	100,700	100,700	180,700

PHASING OF DEVELOPMENT (Cont.)		1970-72	1973-75	1976-78	1978 + 40%
<b>SERVICE BUILDINGS</b>					
Sq.ft. carried forward					
	Boiler Houses	9,550	9,550	6,000	12,000
	Maintenance Depot	14,750	14,750	15,000	15,000
	Gardeners' Depot	2,750	5,000	5,000	5,000
	University Store	7,750	20,050	31,300	62,000
		34,700	49,350	57,300	94,000
Sq.ft. to be phased out:					
	Boiler Houses	-	9,550	-	-
	Maintenance Depot	-	14,750	-	-
	Gardeners' Depot	2,750	-	-	-
	University Store	1,700	6,050	-	-
		4,450	30,350	-	-
Sq.ft. to be added:					
	Boiler Houses	-	6,000	6,000	4,800
	Maintenance Depot	-	15,000	-	6,000
	Gardeners' Depot	5,000	-	-	2,000
	University Store	14,000	17,300	10,700	16,800
		19,000	38,300	16,700	29,600
Total sq.ft. available:					
	Boiler Houses	9,550	6,000	12,000	16,800
	Maintenance Depot	14,750	15,000	15,000	21,000
	Gardeners' Depot	5,000	5,000	5,000	7,000
	University Store	20,050	31,300	42,000	58,800
		43,350	57,300	74,000	103,600



PHASING OF DEVELOPMENT (Cont.)	1970-72	1973-75	1976-78	1978 + 40%
<b>CAR PARKING</b>				
Spaces carried forward	Car parks 122, 134, 155-62, 174-5 Total 515 spaces	Car parks 134, 155, 157-8, part 174, 175, part 212, part 214, 215 Total 708 spaces	Car parks 155, 157-8, 212, 214-15 Total 914 spaces	Car parks 155, 157-8, 211, part 213, 214-5 Total 1,014 spaces
Spaces to be phased out	Car parks 122, 156, 159-162, part 174 Total 342 spaces	Car parks 134, remainder 174, 175 Total 54 spaces	Part car park 212 Total 400 cars	Remainder car park 212 Total 200 cars
Spaces to be added	Car parks part 212, part 214, 215 Total 435 spaces	Extend car parks 158, 212, 214 Total 260 spaces	Part car park 213 Total 500 cars	Remainder car park 213, 211 Total 520 cars
Total no of spaces available	708	914	1,014	1,334
Spaces required (interpolated from Table 3, Appendix 4):				
Physical Sciences	264	303	343	482
Service Buildings	100	105	110	185
Total	364	408	453	667
Resulting variation	+ 344	+ 506	+ 561	+ 667
Deficit from Life Sciences Group	- 307	- 368	- 303	- 46
Balance available for other purposes	+ 37	+ 138	+ 258	+ 621



## Development of the Middle Campus

### 1. Location

The Middle Campus is defined by University Avenue on the north, Ellery Circuit and Liverside Street on the east, Garran Road on the south, and the Glade and Sullivans Creek on the west. This area lies between the research schools on the Peninsula and the undergraduate facilities concentrated along University Avenue. It contains a variety of functions including both research and undergraduate teaching facilities, the two main libraries and the Chancelry.

### 2. Population

By 1978 this area will have undergone a 40% increase in staff and a 115% increase in student population over the 1968 figures.

### 3. Planning Objectives

The diversity of activities in this area and its bridging function between research and undergraduate areas make it one of special importance. The two libraries especially will generate a large volume of traffic, and planning in the area should facilitate efficient and convenient communication between them.

Major planning objectives for this area include:

- Remove all temporary buildings which disfigure the environs of Law, Oriental Studies and Menzies Library;
- Complete the development of the Law-Oriental Studies quadrangle;
- Complete the Chancelry Group;
- Rationalise and improve roads and parking provisions;
- Extend landscape development to link with that of the University Avenue area.

### 4. Phasing of Development

#### a) The existing Situation

Present development consists mainly of two-storey buildings. Contrast of scale is provided by the five-storey block of the Chancelry. A contrast in form is provided by the triple hexagon of the H.C. Coombs Building.

The existing carparks in the vicinity of the Coombs Building and Chancelry are well integrated with the landscape, but a regrettable clutter is developing on Fellows Road.

b) 1970-72 Triennium

Developments proposed for this triennium include:

Construct the extension to the Law Library as applied for in the 1970-72 submission to the AUC. A suggested relocation is shown on the plan, to close the end of a courtyard which could be developed between the Menzies Library and Lae Buildings;

Convert the existing Union Building to provide Administration expansion space. (The 1970-72 submission to the AUC includes an application for extensions to the Chancelry. It is proposed that these funds be transferred to conversion and replacement of the Student Union);

Phase out the temporary buildings housing SGS Biochemistry and Bank, Post Office and Canteen. Accommodation for these facilities would be provided elsewhere on the campus during this triennium;

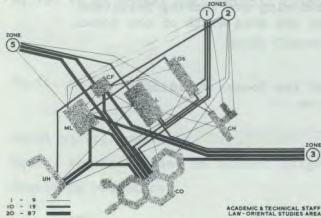
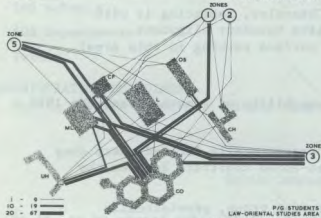
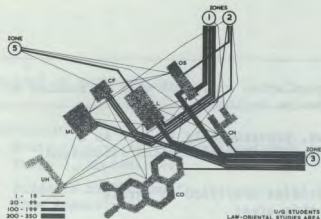
Complete unfinished areas within the third hexagon of the Coombs Building, and construct a stores and vehicle compound as requested in the submission to the AUC for the 1970-72 triennium;

Phase out parts of Eggleston, Garran and Fellows Roads and Ellery Circuit;

Construct a section of the proposed University ring road running along the east boundary joining Liversidge Street and turning into Balmain Crescent. It would be desirable to widen Balmain Crescent at this stage;

Increase the capacity of the existing carpark between the Chancelry and the Union to a total of 250 cars. (The apparent excess of parking spaces over the requirement for the population of this area would provide parking for patrons of the Performing Arts Centre and other facilities proposed at the entrance plaza);

Extend east road to join the ring road and construct a service access road from Fellows Road to the SGS Library;



## LEGEND

## ZONES

- 1 RESIDENTIAL COLLEGES
- 2 LIFE & PHYSICAL SCIENCES
- 3 ARTS, ECONOMICS
- 5 JAS
- CF CARTERAN BANK, P.O. VISUAL AIDS, PRINTING, UNIVERSITY PRESS, BIOCHEMISTRY, ETC.

- CH CHANCELRY
- CO M. C. COOMBS
- L LAW
- M MENZIES LIBRARY
- OS ORIENTAL STUDIES
- UH UNIVERSITY HOUSE

## c) 1973-75 Triennium

Developments proposed for this triennium include:

An extension of approximately 50,000 sq.ft. to Menzies Library as nominated in the tentative capital building programme for the 1973-75 triennium. The extension has been notionally located as a tower immediately north of the present Library on land currently occupied by temporary buildings);

Construct an extension to the Law Library as nominated in the tentative capital building programme for the 1973-75 triennium, relocated as shown;

Construct a building of approximately 30,000 sq.ft. provisionally located across the west end of the courtyard between the Law and Oriental Studies buildings. (This would include sufficient space for the Law lecture theatres requested in the 1970-72 submission to the AUC, additional Law accommodation nominated in the tentative capital building programme for the 1973-75 triennium, expansion space for Oriental Studies at one stage included in the tentative programme for 1973-75 but deleted from the revised submission, and replacement of the tennis pavilion. It is suggested that this project be timed to coalesce funds from both triennia, enabling the construction to be carried out as one building operation);

Construct approximately 48,500 sq.ft. of administrative office space to replace temporary accommodation, to accommodate the anticipated increase in staff and to overcome the apparent deficiency from the previous triennium (the calculation of area requirements for administration buildings was taken by applying the current area per staff member in the Chancelry building to the staff population projections prepared by Mr. Milford);

Remove all remaining temporary buildings from the area;

Phase out the remainder of Sullivans Creek Road and carparks associated with the temporary buildings;

Increase the capacity of the carparks between the Law and Coombs Buildings and east of the Chancelry;

Construct a sunken carpark east of the suggested University Auditorium.

## d) 1976-78 Triennium

It is anticipated that the optimum campus population of 12,000 will be reached by 1978. Developments suggested for this triennium include:

Construct administration expansion space, provisionally located as a link between the former Union building and the administration extensions suggested in the 1976-78 triennium;

Phase out carpark in the Law-Oriental Studies courtyard to permit completion of landscape development in this area;

Phase out surface carpark east of the Chancelry, replacing it with a car-parking structure. (The restrictive boundary alignment reduces the area of land available for surface parking in this area).

## e) 1978 + 40%

Further expansion provisions to meet the possibility of growth beyond the 1978 figures include:

Further expansions to Menzies Library, provisionally located where they would complete the south side of an open-ended courtyard between the Library and Law;

Expansion space for the Law-Oriental Studies group, provisionally located north of the Oriental Studies building overlooking Sullivans Creek and the sports fields proposed for the area south of the School of General Studies Library;

Expansion space for Administration;

Phasing out the surface parking south of the Coombs Building, replacing it with a car-parking structure.

PHASING OF DEVELOPMENT	1970-72	1973-75	1976-78	1978 + 40%
<b>POPULATION</b>				
Staff in persons (interpolated from Table 2, Appendix 4)	948	1,044	1,140	1,596
Students in EFTS units (interpolated from Appendix 2)				
IAS schools	320	380	440	440
SGS departments	698	873	1,047	1,466
Total	1,018	1,253	1,487	1,906
<b>ADMINISTRATION BUILDINGS</b>				
Sq.ft. carried forward:				
Middle Campus	Permanent 47,350 Temporary 18,930	Permanent 71,050 Temporary 18,930	119,500	129,500
South Campus	Temporary 8,770	Temporary 8,770	-	-
Sq.ft. to be phased out:				
Middle Campus	-	Temporary 18,930	-	-
South Campus	-	Temporary 8,770	-	-
Sq.ft. to be added	23,700 (Union conversion)	48,450	10,000	33,500
Total sq.ft. available	98,750	119,500	129,500	163,000
Sq.ft. required based on current usage rates	113,000	119,500	129,500	163,000
Resulting variation	- 14,300	-	-	-

PHASING OF DEVELOPMENT (Cont.)	1970-72	1973-75	1976-78	1978 + 40%
<b>UNDERGRADUATE ARTS-BASED TEACHING FACILITIES</b>				
Sq.ft. carried forward	Permanent 59,000 Temporary 2,000	Permanent 66,700 Temporary 2,000	97,200	97,200
Sq.ft. to be phased out	-	Temporary 2,000	-	-
Sq. ft. to be added	7,700	30,500	-	36,000
Total sq.ft. available	Permanent 66,700 Temporary 2,000	Permanent 97,200	97,200	133,200
Sq.ft. required (calculated using 90 sq.ft. per EFTS)	63,000	78,700	94,300	132,000
Resulting variation	+ 5,700	+ 18,500	+ 2,900	+ 1,200
<b>POSTGRADUATE RESEARCH FACILITIES</b>				
Sq.ft. carried forward: Middle Campus	Permanent 151,070	170,790	170,790	170,790
South Campus	Temporary 9,900			
Sq.ft. to be phased out: South Campus	9,900	-	-	-
Sq.ft. to be added	19,720	-	-	-
Total sq.ft. available	170,790	170,790	170,790	170,790



PHASING OF DEVELOPMENT (Cont.)	1970-72	1973-75	1976-78	1978 + 40%
<b>LIBRARY BUILDINGS</b>				
Sq.ft. carried forward	184,600	184,600	234,600	244,600
Sq.ft. to be added	-	50,000	10,000 (Biological Sciences Library)	100,000
Total sq.ft. available	184,600	234,600	244,600	344,600
<b>CAR PARKING</b>				
Spaces carried forward	Car parks 126-7, 129-33, 136-46	Car parks 126-7, 129-33, 136-44, 205	Car parks 126-7, 129-31, 138-44, 205, 204A	Car parks 126-7, 129-31, 139-41, 144, 204-5, 204A
	Total 677 spaces	Total 727 spaces	Total 791 spaces	Total 936 spaces
Spaces to be phased out	Car parks 145-6	Car parks 132-3, 136-7	Car parks 138, 142-3	Car park 126
	Total 42 spaces	Total 112 spaces	Total 355 spaces	Total 64 spaces
Spaces to be added	Car park 205, extend 142-3	Car park 204A, extend car parks	Car park 204	Car park 203
	Total 90 spaces	Total 176 spaces	Total 500 spaces	Total 400 spaces
Total no. of spaces available	727	791	936	1,272
Spaces required (interpolated from Table 3 Appendix 4)	672	726	779	1,090
Resulting variation	+ 55	+ 65	+ 157	+ 182

BURGMANN  
COLLEGE

BOATHOUSE

TANDEM  
GENERATOR

NUCLEAR  
PHYSICS

ANIMAL  
BREEDING

MATHEMATICS

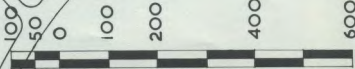
SPOR  
PAVIL

CHIFLEY

JOHN CURTIN SCHOOL  
OF MEDICAL RESEARCH

GEOCHEMISTRY

POSTGRAD. HALL  
OF RESIDENCE



## Development of the Peninsula

### 1. Location

The peninsula is defined as the environs of JCSMR and RSPhysS, bounded by the lake on the south, Sullivans Creek on the west, Ward Road and the Glade on the north, and extending south to about the line of the Vice-Chancellor's house.

### 2. Population

With the relocation, first of RSBS and then the Division of Properties and Plans elsewhere on the campus, the staff population in this area will reduce by 5% by 1978. At the same time it is anticipated that the postgraduate student enrolment will increase by 70%, resulting in a net increase in population of about 5%.

### 3. Planning Objectives

The immediate objectives are to remove temporary buildings and to refine and consolidate the permanent buildings and their environs. The known requirements for expansion are not substantial, but great improvements can be made with small, well-placed additions. A special study is needed of how the present clutter can be coalesced, including by such simple means as painting.

Greater definition is needed of major internal spaces, notably the area between JCSMR and Geophysics, which could be developed into a fine courtyard. Car parking calls for particular attention, aimed at overcoming the prevailing appearance of chaos. Parking on kerbs and grass should be eliminated completely and screened carparks provided. These operations should not be allowed to intrude on sites which should be reserved for some substantial new buildings in this area.

Landscape development should be intensified and directed towards achieving an atmosphere appropriate to the high level of research activities which take place in this area.

### 4. Phasing of Development

#### a) The Existing Situation

In terms of building development, this area is the most intensely developed portion of the site. Approximately 12% of the gross building area is contained in temporary buildings, but as these are all single-storey structures they account for 21% of the building land coverage.

## b) 1970-72 Triennium

Developments proposed for this triennium include:

Extend the Cockcroft, Mathematics, Tandem Generator, John Curtin School of Medical Research and Animal Breeding Establishment buildings as applied for in the 1970-72 submission to the AUC;

Construct a new boathouse, also requested in the 1970-72 submission, but relocated closer to the mouth of Sullivans Creek;

Remove the High Tension Laboratory, Romney Huts, Round House, Blocks K, L, M and N of the old Hospital Buildings and the Old Health Laboratory. (The functions at present located in these buildings would be provided with accommodation in new buildings proposed for this triennium.);

Extend grazing land to the east and south, or off-campus, to replace the area lost by the construction of the extension to the Animal Breeding Establishment;

Phase out parts of Ward, Garran and Eggleston Roads and some carparks to permit construction of a section of the proposed new ring road between Ward Road and Balmain Crescent;

Extend the surface carpark south and east of Geochemistry to replace car-park spaces lost in the construction of the ring road;

Remove the existing explosives magazine and construct a new magazine, under central control, off-campus.

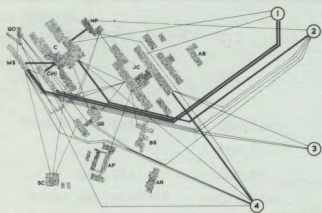
## c) 1973-75 Triennium

Developments proposed for this triennium include:

Extend the Mathematics building as nominated in the tentative capital building programme for the 1973-75 triennium;

Remove Blocks B and C of the Old Hospital buildings. (The Division of Properties and Plans would be relocated in the extensions to Administration proposed for this triennium.);

Phase out the No 1 Boiler House, which would release space for possible expansion by JCSMR. (The construction of a University boiler plant in the north-west corner of the campus is suggested for this triennium.)



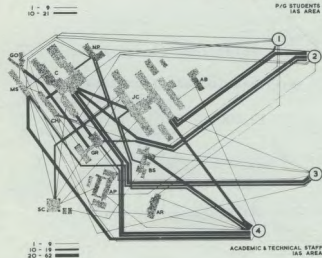
#### d) 1976-78 Triennium

It is anticipated that the optimum campus population of 12,000 will be reached by 1978. Developments proposed for this triennium include:

Construct an extension to the Geosciences group to provide expansion space and complete the south side of the courtyard;

Remove the Old Geophysics, Garage and Diesel buildings to complete the programme for phasing out temporary buildings. (It has been suggested that Block A of the Old Hospital Buildings be retained for historical interest.);

Construct a low parking structure to complete the west end of the courtyard.



#### e) 1978 + 40%

Further expansion provisions to meet the possibility of growth beyond the 1978 figures include:

Construct a possible tower building on the end of the Point, close to the mouth of Sullivans Creek;

Construct a second low car-parking structure to form the east end of the courtyard;

Construct additional research facilities or residential development on the residual sites.

#### LEGEND

##### ZONES

- 1 RESIDENTIAL COLLEGES
- 2 LIFE & PHYSICAL SCIENCES
- 3 ARTS, ECONOMICS
- 4 LAW, ORIENTAL STUDIES
- AB ANIMAL BREEDING ESTABLISHMENT
- AF A/A S/S FOUR, PROF & PLANS
- AR ARCHAEOLOGY
- BS BBS

- C COCKROFT
- CH CHIPLEY
- GO GEOPHYSICS - OLD
- GP GEOPHYSICS - RSP/MS
- JC JOHN CURTIN SCHOOL OF MED RESEARCH
- MS MATHEMATICAL SCIENCES
- NP NUCLEAR PHYSICS
- SC STAFF CLUB

PHASING OF DEVELOPMENT	1970-72	1973-75	1976-78	1978 + 40%
<b>POPULATION</b>				
Staff in persons (interpolated from Table 2, Appendix 4)	798	784	770	1,078
Students in EFTS units (interpolated from Appendix 2)	150	185	220	220
<b>POSTGRADUATE RESEARCH BUILDINGS</b>				
Sq.ft. carried forward	413,500	435,800	443,360	457,710
Sq.ft. phased out	5,520	-	5,650	-
Sq.ft. added	27,820	7,660	20,000	182,290
Total sq.ft. available	435,800	443,360	457,710	640,000
<b>OTHER FACILITIES</b>				
No 1 Boiler House (sq.ft.)	4,660	- (space released for other purposes)	-	-
Animal Breeding Establishment: Buildings (sq.ft.)	10,830	19,000	19,000	19,000
Grazing land (acres)	1	1	1	1
Garage and Diesel Building (sq.ft.)	5,250	5,250	- (phased out)	-
Boatsheds (sq.ft.)	-5,100 +4,360 (Romney Huts phased out, new boatsheds constructed)	4,360	4,360	4,360
Old Hospital Buildings Block C (sq.ft.)	-	5,120 (vacated by Administration)	5,120	- (land released for other purposes)
Explosives Magazine	phased out - new magazine off-campus	off-campus	off-campus	off-campus

PHASING OF DEVELOPMENT	1970-72	1973-75	1976-78	1978 + 40%
<b>CAR PARKING</b>				
Spaces carried forward	Car parks 101-18	Car parks 103-10 118	Car parks 103-10 118	Car parks 103-6, 108-10, part 118, 202
	Total 462 spaces	Total 501 spaces	Total 501 spaces	Total 471 spaces
Spaces to be phased out	Car parks 101-2, 111-17	-	Car parks 107, part 118	-
	Total 211 spaces		Total 230 spaces	
Spaces to be added	Extend car parks 107, 118	-	Car park 201	Car park 202
	Total 250 spaces		Total 200 spaces	Total 200 spaces
Total no of spaces available	501	501	471	671
Spaces required (interpolated from Table 3, Appendix 4)	488	454	454	633
Resulting variation	+13	+47	+17	+38

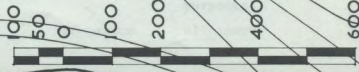
UNIVERSITY HO

UNDERGRAD.  
HALL OF RESIDENCE

UNDERGRAD. HALL  
OF RESIDENCE

CLINICAL MEDICINE

UNDERGRAD. HALL  
OF RESIDENCE





### Acton Ridge

A particular responsibility attaches to the development of Acton Ridge. This is the pre-eminent part of the campus; and so important in the geometry of the National Capital that underdevelopment would be worse than no development at all.

On the debit side the Ridge has two disabilities: the jumble of hospital buildings on the nearby tip of the peninsula, and the projected Parkes Way extension with its tunnel through the middle and its complex interchanges.

This is no place for impoverished attempts at grandeur. Too often we talk of Versailles - and achieve suburbia. Proper development here will cost a great deal of money. We believe that the Ridge needs a building mass approximating that of the National War Memorial, dominating the hospital and isolated from it by a generous tract of parkland. Its low eminence calls for the emphasis of a tall structure, splendidly composed against the back-drop of Black Mountain, and tied to the peninsula by a firm, spreading base.

In a practical sense it is not essential that any development should take place within the ten-year period covered by this report: it could be tidied up as parkland and left for later generations to build on, if and as they think proper. Meanwhile, it provides an agreeable buffer between the University and the hospital, marred by the obsolete buildings of Lennox House, which should be removed. However, the need to allocate sites for additional student residences, together with the possibility of a Great Hall being located in this area, make it necessary to review earlier proposals for its development and suggest any improvements that may seem desirable in the context of current planning.



The Winston concept of a ceremonial group of buildings is a fine one; and if we have challenged it we have done so without malice, in a spirit of enquiry as to whether it fits all the requirements. We have asked, firstly, whether a policy of isolating a Great Hall and associated cultural facilities from the centre of undergraduate activity is better than one of involvement. The opposing views on this question have still to be resolved.

A second question, unrelated to the first, is whether a set piece, formally composed about the line of Griffin's water axis, would in fact fulfil the potential of this unique site. The peninsula thrusting out into West lake is a prominent feature in a landscape of large elements and many viewing points. Is it not the site for a great symbolic building designed for viewing 'in the round', rather than along a paper line? If the University needs physical expression of its National role, this surely is the place for it.

Pursuing this thought, we have envisaged a complex of buildings arranged in the manner (but not the style) of a medieval fortification. It could be likened to a great castle on a hill, the castle walls springing from the hillside to enclose a keep on the higher ground, out of which the main mass rises. In this concept the wall would be a habitable one formed of residential accommodation (halls of residence, staff and student flats) and academic buildings (medical school) spreading low across the slopes and merging with retaining walls and terraces to absorb the roads, tunnel and bridge works into a unified base.

The keep is the Ridge, already endowed with splendid trees which should be conserved in the landscaping of the buildings on the high ground.

The main mass is a cluster of buildings grouped and sculpturally unified into a form which would be identifiable throughout the city as a symbol of the National University. The uses of these buildings are not yet known: they might include a Great Hall or Auditorium, a tower accommodating some of the University's future research activities, and lower wings for a variety of purposes. (One hopes that car parking would be hidden from view under terraces or, as noted elsewhere, within the superstructure of the Parkes Way tunnel.)

In many ways this is not so much a change as a variation of the previous concept, remodelled in an attempt to give greater emphasis to the Ridge, identifying it more closely with the remainder of the campus and to assimilate the future public roads more efficiently into the landscape. Tunnelling and roadworks will bring drastic changes and influence the timing of building on the Ridge, but the complex is capable of being built progressively. It is not necessarily dependent on the inclusion of a Great Hall.

### Lecture Theatres

The basic requirements of classroom and lecture theatre planning are to provide sufficient rooms of all kinds to accommodate the number of classes scheduled, and sufficient seats in them to accommodate the students enrolled in each class.

Because of the wide range of requirements whose demands have to be met, it is important to plan for a high degree of flexibility and efficiency of use. The problems of timetabling impose a practical upper limit in the use of facilities. Geographical distribution and the phasing out of temporary buildings are further complications.

Preliminary investigations show that by upgrading the efficiency rating and hours of use per week, the University has sufficient seats in classrooms and lecture theatres to meet the demand until 1973, but that these seats are distributed in too few rooms to meet the 1969 demand adequately. Because of the geographical distribution of facilities this dilemma cannot be easily resolved. It does indicate that the immediate need is for a number of small rather than large rooms.

The number and distribution of classrooms and lecture theatres will depend on:

- the number of classes held per week;
- the desirable sizes of classes;
- the origin on the campus of students taking classes;
- the usage rate of rooms in hours per week;
- the percentage occupancy expected;
- the number of lecture contact hours required in each academic discipline;
- the total student enrolment;
- policies on audio-visual aids.

Some of these factors will need to be established as policy by the University; others will require a detailed examination of class and lecture statistics. As academic changes emerge a re-examination of the factors involved will be necessary in order that the University should be continually in a position to cope with demands, and to use their facilities efficiently and economically.

It is suggested that a special study should be undertaken to establish the realities of the present situation and to provide a basis for making decisions about

future development. As such a study must interlock with timetabling functions, the results would be of continuing service in the operation of the University and the maintenance of the site plan.

#### Residential Buildings

By 1978, when the population is expected to reach 12,000, it is estimated that 2,100 additional residential places for undergraduates will be required, including the 500 proposed in Burgmann College, and 490 places for postgraduate students (see Appendix 5.)

The selection of sites for undergraduate residences depends on whether it is desired to concentrate them as close as possible to undergraduate teaching, to locate some or all of them remote from teaching facilities, or to house some or all future residents off campus. The solution may well be a combination of all three. The decision as to where to build will depend on:

- the types and numbers of students to be housed (single undergraduates, male and female; single postgraduates, male and female; married undergraduates; married postgraduates);

- the types of housing to be provided (halls of residence; affiliated colleges; co-operative housing of various types; flats for single students, shared or otherwise; flats for married students);

- the availability of suitable sites bearing in mind location and size, site-planning principles (zoning, conservation of open spaces, traffic patterns, etc.), and possible conflict with other requirements (massive car-parking areas, central service facilities, etc.).

An examination of possible sites indicates that approximately 80 acres are available from which to select the 35 acres that will be needed, if all future resident student accommodation is to be provided on the campus. Ample space is available, provided that proper site reservations are made.

The need to conserve open space brings conflict between the area needs of the residences with those of parking and other contenders for some of these sites. Here it is again emphasised that the larger the University population becomes, the greater is the need for large areas of parklands and playing fields. Space would be conserved by:

- building high-rise accommodation to reduce ground coverage;
- greater use of parking structures to increase the ground space available for residences (particularly in central areas);
- providing some future residences off campus;
- integrating some residential accommodation with other facilities, e.g. academic buildings and parking structures.

The balance between the relative costs of different solutions and their relative merits in terms of social needs and amenity require close analysis. It is suggested that a special study might be undertaken by an experienced expert in university housing, to help gather information and formulate policies.

Meanwhile, it has been assumed that all future residential accommodation (excluding houses) will be provided on the campus. Provisionally, the following sites have been shown in the plans for this purpose:

North of the Geology School on Boldrewood Street: A hall of residence in this position would be convenient to all central facilities. It could enhance the Boldrewood Street entrance to the campus, and would enjoy a fine aspect overlooking Sullivans Creek.

West of Burgmann College on Clunies Ross Street: A hall of residence in this position would be reasonably central, and enjoy a splendid outlook from high land, looking north-east across the valley towards the undergraduate centre. It would also enhance the proposed new campus entrance.

Four sites on the slopes of Acton Peninsula: These present opportunities for development of a range of housing types, from halls of residence to flats. Each site has remarkable views across the lake. Although they are remote from the undergraduate centre, experience in Lennox House has shown that this is not a serious disability. The buildings should be low, perhaps stepping down the slopes to form a visual base to the monumental building complex which, desirably, will be constructed on the Ridge. Conceived as parts of a composition of great importance in the civic landscape, these residences should be designed to a repetitive theme with the continuity of a castle wall rather than as individual buildings.

### Aesthetics of Site Planning

Universities, especially those occupying sites as prominently located and as large as that of ANU, have opportunities for aesthetic fulfilment that amount almost to a public duty. In the processes leading up to the present planning review it was apparent that this is well recognised by ANU. Aesthetic quality cannot be superimposed, like an optional extra: it must be implicit in the plan.

From a site planning point of view, the main areas of visual aesthetic influence are:

- relationships with the urban environment;
- design of buildings and the relationships between buildings;
- landscape design, in the broad sweeps especially, but also in the detail;
- street furniture, signs, etc;
- engineering works on or above ground including roads, flood controls, bridges, outdoor lighting, services structures, etc.

In an ideal society, aesthetic quality would result automatically from mutuality of interest amongst the architects, landscape designers and others involved in design. This age of uncertain values and divergent opinions requires that the designers accept some form of control as a condition of their participation. The alternative is to permit free expression in every project. Although this has its counterpart in academic freedom, we believe that site planning is one of the areas in which a University should speak with one voice.

These matters have been very much in mind throughout the planning review. However, they have not yet been discussed with the University and it would be premature to give more than general comment in this report as to what is to be sought and how it might best be achieved.

Whether it be exercised by an individual or by a group, design control must discriminate between quality and vulgarity, between freakishness and significant innovation. If it allows preconceived ideas to restrain creative thinking, it is doomed to failure. Success will depend on the means of channeling individual creativity in the direction of overall cohesion. The price of success must include the acceptance of an overall discipline the nature of which is difficult to define, excepting as a filter of personal taste which is exercised within a framework of approved principles.

## Landscape Design

'Taken in the broadest sense the landscape of a site may be regarded as the total visual external environment - it is not something separate, something to be added as a final fillip to the composition, but an integral element of the whole.

It may be that this basic principle is self evident and indeed considerable lip service is paid to it throughout the whole range of planning activity. However, it is also evident that during the process of realisation - frequently owing to financial stringency - the fine integrated concept falls apart. The most effective method of preventing this shattering of the ideal is to ensure that landscaping aspects are co-ordinated ... in the planning process from the earliest stages ...

Simplicity, a sense of scale and congruity, are other basic principles which, while not providing a royal road to a beautiful landscape, do take one a long way and ensure that such excesses as turning a landscape into a garden are avoided. They are of particular importance here at ANU. The site, which has frontages to the lake and the back-drop of Black Mountain, is quite noble, and apart from enclosed courtyards and the higher-density buildings areas, the treatment should be broad and sweeping - done with a big brush - so that the smaller scale areas become just intimate incidents of the whole.'

With this introduction the University Landscape Designer (Mr John Stevens) sets the scene for the integration of landscaping objectives with general planning that must now take place. The present plans go no further than indicating broad sweeps and drawing attention to some possibilities such as the redevelopment of University Avenue to form a series of traffic-free courts, the conservation and expansion of landscaped areas in the valley and the Glade; and the development of a 'bridge' for wildlife between Black Mountain and the campus.

Detailed recommendations will be made later, including proposals for foundation planting during the coming winter to start establishing the proposed new patterns of roads, walks, playing fields, nature reserves, etc.

## Traffic

### 1. Existing Traffic Pattern

In the present layout the campus is divided by an irregular network of roads into a large number of island blocks surrounded by vehicular trafficways.

Although the roads provide functional access to all buildings, they are unsuitably

arranged to handle the ever-increasing flow of traffic with ease or safety. The system provides little segregation of pedestrians from vehicles. It contains many dangerous corners and intersections.

The June 1968 traffic survey showed that site-oriented traffic, particularly from the south and west, enters the campus and then distributes over a wide interlacing pattern to reach the points of destination (as shown in the diagram). It has been shown also that the present layout of roads and buildings encourages excessive vehicular movement from one part of the site to another throughout the day. In addition a high incidence of traffic which is unrelated to the University passes through the site, particularly in the east-west direction.

As a result of these factors, traffic congestion is frequent and the hazardous conditions which are already evident can be expected to increase.

## 2. Ideal Traffic Pattern

A fundamental objective of site planning is to simplify and improve traffic patterns progressively to achieve a system which:

- gives immediate access from the public roads to car parks located as near as possible to places of study and work;
- segregates vehicular traffic from the main lines of pedestrian movement;
- provides safe and efficient communication between buildings;
- facilitates service access throughout the University;
- integrates the internal road system and points of entry to the campus with the civic patterns of approach roads;
- inhibits the use of University roads by non-University-oriented travellers;
- reduces traffic noise and disturbance near research, teaching and residential buildings;
- provides access to buildings for elderly or infirm people, for those whose activities include the carrying of heavy loads, VIP visitors, etc.

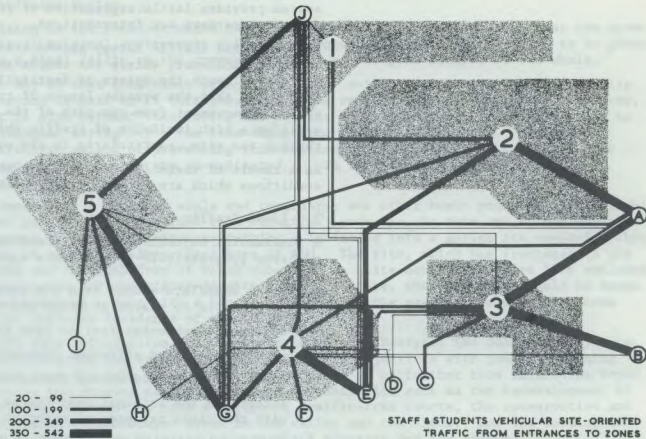
An ideal situation is one in which the University entrances lead directly into a ring road encircling the campus which leads directly to car parks as close as possible to the points of destination. Access inside the ring road is restricted to service vehicles only, the academic buildings being within a pedestrian precinct. The system should depend on logical layout rather than manned control points.



FIGURE 2-10 THE UNIVERSITY SYDNEY'S SITE PLAN  
SOURCE: UNIVERSITY OF SYDNEY ARCHITECTURE DEPARTMENT

ROAD NAME	TYPE
ROAD 1	1
ROAD 2	2
ROAD 3	3
ROAD 4	4
ROAD 5	5
ROAD 6	6
ROAD 7	7
ROAD 8	8
ROAD 9	9
ROAD 10	10
ROAD 11	11
ROAD 12	12





### LEGEND

#### ZONES

- 1 RESIDENTIAL COLLEGES
- 2 LIFE & PHYSICAL SCIENCES
- 3 ARTS, ECONOMICS
- 4 LAW, ORIENTAL STUDIES
- 5 INSTITUTE OF ADVANCED STUDIES

#### ENTRANCES

- A NORTH ROAD
- B KINGSLEY STREET
- C UNIVERSITY UNION
- D CAR PARK 142
- E EAST ROAD
- F CAR PARK 128
- G GARRAN ROAD
- H BALMAIN CRESCENT
- I MILLS ROAD
- J DICKSON ROAD

### 3. Proposed Traffic Pattern

A considerable amount of adaption is needed to superimpose these principles on the existing pattern. The ideal cannot be wholly achieved, but great improvements are possible and desirable.

The accompanying plans show how the present system can be progressively modified to provide a ring road system having most of the characteristics outlined above.

It utilises existing roads wherever possible, but progressively eliminates dangerous corners and intersections, roads which cross the central parklands, and other roads which become redundant in the new pattern.

It thereby creates large areas within the site which are free of vehicular traffic, safe for pedestrians, and available for siting new sports grounds and extending the landscape treatment.

During the early stages it is expected that the alignment of the ring road will follow Daley Road, extending to and following the University boundary around its north and east sides, and connecting with Liversidge Street which should be absorbed into the internal system. Swinging west along Balmain Crescent it will follow a new alignment along the south wall of the Glade to connect with Ward Road and crossing Sullivans Creek to rejoin Daley Road.

This alignment will fail to correct three grave disabilities in the present system:

The isolation of halls of residence and affiliated colleges from the academic buildings, sporting facilities and parklands;

The dangerous bends and intersections near the Catholic colleges;

Difficult access between the University and CSIRO.

An obvious way of overcoming these problems is to eliminate most of Daley Road and use Clunies Ross Street as the western section of the ring road. It would probably need to be widened, with a median strip to give safe turns into the University and CSIRO entrances and provide a continuous pedestrian refuge. There can be little doubt that this should be the long-term objective; but, pending the availability of an alternative route for public traffic using Clunies Ross Street, the traffic consultant notes certain problems:

Bona fide circulating traffic would be forced to take a circuitous road from the low-speed campus street system to Clunies Ross Street (designed

as part of the public road system for higher speeds) and back to the campus system. These manoeuvres would appear to involve undesirable delays and hazards for intra-campus trips;

Problems of access and control at the campus entrance on Clunies Ross Street would be increased by the need to check the entry of vehicles on the intra-campus street system and parking facilities would in effect be open to public use;

Internal University traffic movements would be superimposed onto the city street system.

If convenience of drivers were the only consideration, one could hardly dispute these points, which must certainly be discussed with the NCDC. However, the safety and convenience of the many people moving on foot between their residences and all parts of the academic centre is a matter of far greater concern, and in the balance it is felt that their needs should exert the stronger influence. The improved communications that would result between the University and CSIRO for both pedestrians and vehicles add weight to the proposal.

Alternatively, it would be possible to use one channel of a divided Clunies Ross Street as a through road for public traffic, and the other channel as part of the ring road. This would overcome most of the objections noted. It has therefore been adopted and illustrated in the accompanying plans as a tentative recommendation, subject to further exploration. The stages by which it could be achieved are shown in the phasing diagrams.

#### 4. Liaison with the National Capital Development Commission

An important result of the recent ANU-NCDC joint traffic study has been the setting up of arrangements for collaborative study of areas of common concern, such as the effects of the western distributor and Parkes Way extension on the University's approaches, boundary alignments and entrances. Discussions have been initiated at a technical level to support the top-level meetings between the University and NCDC on problems of mutual concern, including traffic matters.

The present plans leave options open for benefits to flow from these studies, which are expected to bear fruit by about the end of 1969.

## Parking

### 1. Existing Car-parking Pattern

The traffic survey conducted by the University on 18 June 1968 listed some eighty car-parking areas distributed throughout the University campus. Most of these parks are adjacent to buildings. Bearing in mind the present ease of moving between buildings by car, it is understandable under these circumstances that a great many trips were recorded on the internal road system which could have been made just as easily on foot. If the present policy were allowed to continue, the buildings would soon become engulfed by parking areas, all of them generators of traffic movement. Road congestion would increase and an already serious problem would become much more acute.

This multiplicity of parking areas provides a degree of amenity that cannot be sustained in an enlarged university. In compensation, it is important that the new system should be one which makes it attractive to walk on the shorter journeys and not too difficult to reach one's car to make longer journeys. In addition, the need for certain classes of parking to be available immediately adjacent to buildings must be recognised.

### 2. Ideal Parking Pattern

In seeking a solution to the problems of car parking the main objectives should be to:

- provide parking in sufficient numbers to meet the anticipated demands at all stages of development;
- deal with the bulk requirements by developing large general carparks strategically located close to the main population areas, to which students, staff and ordinary members can walk through traffic-free areas;
- restrict long-term parking alongside most buildings to designated persons such as senior staff, elderly and infirm people, drivers of departmental vehicles, authorised visitors and approved tourist buses;
- provide short-term parking beside buildings for mail and other deliveries.

### 3. Proposed Car-parking Pattern

The anticipated parking needs are detailed in Appendix 4. Over 5,000 places will be needed by 1978, assuming an average ratio of 50% car drivers to non-drivers as

forecast by the traffic consultant. This is below the present ratio of 64% for non-resident students and staff, the expectation being that the public transportation system will be substantially improved - as indeed it must if the city is to continue to function. At the present ratio an additional 1,000 places would be required. In present plans the lower ratio is accepted but the higher could be accommodated if necessary.

In principle, it is proposed to develop large parking areas directly accessible from the ring road and as close as possible to population centres, the main concentrations being on the eastern and northern fringes of the campus. Currently, the multiplicity of small dispersed parks should be eliminated so far as students and ordinary staff are concerned.

Parking requirements can be met by surface carparks only until the 1973-75 triennium. During this period the demand for places is expected to exceed ground space available; some of the land occupied by carparks will be needed for new building sites.

There appear to be three alternative solutions to this problem:

Allow car parking to encroach on areas reserved for parkland and sporting facilities;

Restrict the number of cars permitted to park on the campus by statute or by the imposition of parking fees or by a combination of both;

Construct multi-level parking structures.

The first alternative would involve unthinkable sacrifices of open space and of quietness within the campus. The second would be unrealistic unless there were dramatic changes in the quality and acceptance of the public transportation system. The third is suggested as a viable solution. If this is agreed, a programme to establish parking structures during the 1976-78 triennium will need to be undertaken. The University might consider introducing a charging system for parking on the site for a period prior to introducing structures to establish the idea and build up a capital fund for their construction. The timing for introduction of parking charges requires co-ordination with the NCDC, which is faced with similar problems in the city, in order to avoid the chaos that might result if free parking were available just across the boundary from a charged parking zone.

The first parking structures would be required to the north of the Arts-Economics area, where the calculated demand will be highest, and in the area east of the Chancelry where the restrictions on the alignment of the ring road reduce the area

of land available. These would be followed by a third structure north of Ursula College which would provide bulk parking for the Life Sciences group and for resident students, enabling some of the existing surface car parks in this area to revert to landscape.

In the JCSMR-RSPHYS area the staff population, and therefore the local parking requirement, will in fact reduce with the relocation of RSBS and the division of Properties and Plans. However, the development of a bulk surface park is recommended to remove the present haphazard and unsightly arrangements and allow a proper landscape treatment to be developed. By 1978, it is proposed that a fourth but smaller structure be built, thus reducing the surface-parking area and closing the west end of the quadrangle.

These structures, in conjunction with residual surface parking, would probably satisfy the requirements up to the optimum total population of 12,000 (i.e. until about 1978). Beyond this it is impossible to predict the rate of expansion, but additional structures would be needed if the University population were to rise substantially above 12,000. The layout indicated would provide parking for an ultimate population of up to 16,800.

As the population grows, ground space will become increasingly precious, particularly in the more heavily populated areas. Conflicting desires within these areas for convenient parking and for generous open spaces may lead to the provision of additional structures in preference to wide-spread surface car parks. The plans show where these might be located.

Parking provisions on Acton Ridge will have to be matched to whatever building development is eventually decided upon. A considerable problem would exist if a large place of assembly were to be located on the Ridge. It is worth recalling the Holford proposal\* of including underground parking within the structure of the Parkes Way tunnel. This is a noteworthy example of the steps that should be taken to preserve the landscape quality of this very important area.

Resident students and staff have particular parking problems involving security as well as convenience of location. Immediate problems are being dealt with on a short-term basis, but in the long term they should be treated integrally with the campus-wide solution. For residences close to the academic centre this would best be done by allocating spaces in the nearest bulk carpark, a section of which might need to be enclosed or supervised for purposes of security. Future residences on

\* 'The Acton Peninsula Study', William Holford & Partners, 1965.

more remote sites would require local carparks, the size of which should not be underestimated in their initial planning.

#### 4. Multi-level Parking Structures

The traffic consultants (Development Planning and Research Associates) have suggested that there could be economic advantages in building multi-level parking structures in certain areas which could be satisfied in the short term with surface parking. Development money should not be wasted on surface parking that might have to be cleared for other purposes within a few years. It may be better to build structures from the outset, thus saving the costs of escalation and gaining revenue over a longer period from a cheaper facility.

Economically, a special study is needed to guide the formation of policies regarding multi-level parking.

Architecturally, parking structures are not expected to offer insuperable problems provided they do not exceed three or four levels. It will be noted that they have been located on the plans in deliberate relationships to other buildings, so that they would merge into the composition of group developments. This feeling must of course extend to their elevational design, so that they are complementary to the academic buildings in their external appearances. Although the structures will be large, they should not be allowed to become dominant elements. With sensitive treatment they are capable of contributing aesthetically as well as practically to the general scene. They can serve useful functions as background buildings, for enclosing pleasant courtyards, for insulating other buildings from busy roads, and above all, by removing many acres of duco from the landscape.

#### Sporting Facilities

A summary of all the known and projected sports buildings and playing fields that exist or are to be provided on the site for the estimated 1978 population of 12,000 is shown in Appendix 6.

Building requirements to be met by 1978 include:

- expansion of the existing south oval change rooms;
- a new tennis pavilion to serve the courts west of the Law and Oriental Studies buildings;
- the first stage of a Sports Union on the north side of University Avenue, adjacent to the new Student Union;

a boathouse located on Sullivans Creek, upstream from the proposed Parkes Way bridge. The low clearance under the bridge precludes the use of this facility for sailing craft, but to locate it south of the bridge would place it in a position where water conditions are unsuitable for launching rowing craft. A second boathouse for sailing craft may be considered later on the shores of Lake Burley Griffin. A site on the south side of Acton Ridge is suggested.

Isolated pavilions and boatsheds tend to be unfortunate disrupters of landscape, and should be integrated into the general view with much greater care than has been done in the existing buildings.

Most of the playing fields needed for a total population of 12,000 can be provided on the site within the central green area. This can be achieved by preparing large multi-purpose areas for field games and marking them out according to the season and the games to be played.

In addition to the central sporting facilities, squash and tennis courts, etc., should be provided adjacent to residential developments to encourage sporting activity amongst resident students who may not be interested in team events.

#### Engineering Services - Energy Requirements

The following commentary on the existing situation and future energy needs of the university has been prepared by W.E. Bassett and Partners, Consulting Engineers, to provide a basis for discussion and to indicate areas in which more detailed investigations should be undertaken:

The main requirements for energy are to meet the needs of services which include electrical, heating, hot-water, refrigeration and gas services.

#### Electrical Services

1. The present development of high-tension reticulation, transformer sub-stations and low-tension reticulation provide a satisfactory pattern for present needs and for future development.

No need for emergency stand-by power on a widespread scale is envisaged. Such a provision would appear unwarranted and would be expensive.

Where continuity of supply is essential, stand-by supply is best provided by small



local plants. In particular, battery-operated safety lighting should be provided in buildings of substance to permit orderly egress in the event of mains failure.

As the present tariff involves, as one of its factors, payment according to maximum demand, it is in the University's interest to limit maximum demand peaks. It is suggested that a study be made to determine the feasibility of installing a stand-by diesel alternator set in a building of large electrical demand to lop off peak demands when the load approaches a set limit.

## 2. Heating and Hot Water

### a) Existing Boiler Plant

Investigations carried out in 1962 indicated that a central plant was to be preferred. However, it was decided to retain the plant service to JCSMR (No. 1 Boiler Plant) and to expand this plant when necessary to serve adjacent buildings, and to establish a new No. 2 Boiler Plant to serve the northern section of the University. This No. 2 Boiler Plant has been established and is in operation. The main reticulation for the system is completed and in operation serving existing buildings. Branch connections are made to new buildings as they are completed.

Due to an increase in the sulphur content of the oil supplied to the University the boilers of No. 1 Boiler Plant are not longer suitable and will require replacement if this plant is to be kept in operation. The boilers of No. 2 Boiler Plant are suitable for the higher sulphur-content oil, provided their chimneys are increased in height.

With the development plan now proposed, No. 2 Boiler Plant is unfortunately sited, and from the planning point of view this boiler house should be moved.

### b) Central Boiler Plant

In view of the difficulties with the boilers in No. 1 Boiler Plant, and with the siting of No. 2 Boiler Plant, there appear to be good reasons for establishing a single central plant to accommodate the two existing boilers from No. 2 Boiler Plant, together with additional plant to replace the boilers in No. 1 Boiler Plant, plus provision for the building presently planned, plus provision for boiler plant to serve future buildings.

This central boiler plant should be located on the perimeter of the University where service vehicles have access to and from roadways outside the University grounds. In order to avoid long pipe mains it would be preferable for this boiler house to be located towards the area at present served by No. 1 Boiler Plant.

c) Combined with Civic Development

It is understood that the NCDC is giving some thought to the development of the area adjacent to Ellery Circuit, and that there is a possibility that a district heating scheme that would serve this area and the University, either partly or completely, would be considered.

In this case it would be expected that the boiler plant would be located somewhere adjacent to the southern side of Ellery Circuit where it would be convenient to the existing reticulation from No. 2 Boiler Plant and for reticulation to serve the JCSMR area. The boiler plant could be located in a high building to accommodate the chimney stacks either in the University or in a similar building forming part of the NCDC development. If a high building were not available then other means could be adopted to disguise the stacks. Heat could be metered and charged accordingly.

There is the further possibility that the University buildings on the south end of the site could be provided with heat from a new plant which would also serve the hospital.

d) Central Refrigeration Plant

In view of the possible future use of air conditioning in university buildings, as mentioned elsewhere, provision should be made in siting of a central boiler plant for expansion of the building to accommodate central refrigeration plant, possibly of the absorption type using heat available from the boiler plant, should an economic study at the time be favourable to central refrigeration plant.

e) Oil Storage

In the event of failure of oil deliveries, the University would need to be reconciled to immediate rationing of heating services, and it is estimated that one week's supply under normal conditions could be expected to last three weeks under rationed conditions. Possibly two weeks' supply, giving six weeks' heating under rationed conditions, would be a reasonable stock. It would be necessary to maintain the stock of oil.

f) Natural Gas

It appears that this source of energy will not be available in Canberra for some years, and when it becomes available its costs and availability will be known enabling its economics and advantages to be studied.

At this stage, boiler plant should be designed for oil firing with provision for conversion to natural gas firing.

#### g) General

It appears to us that, before any final decisions can be made, investigations and studies of the possible alternatives for the number and locations of boiler plants for the university will be necessary.

#### 3. Refrigeration

Under present circumstances and as far as can be foreseen, electricity continues to be the best energy source for cool-room and similar small refrigeration needs.

#### 4. Gas Services

In the absence of city reticulation of gas, the uses of gas should be restricted to a reasonable minimum and should continue to be supplied as at present by bottle installations.

In the considerations of energy uses, there are two other factors which should be mentioned, namely total energy and air conditioning.

#### 1. Total Energy

This is an old concept with a new name. It has been applied for many years in such industries as paper and sugar, where electrical and heat loads are reasonably matched 24 hours a day. University loads are usually not well matched and are not continuous.

In addition to these limitations, the ANU already has a large investment in boiler systems and electrical sub-stations. It is unlikely, therefore, that a total energy system could be found to be economic.

However, for particular groups of buildings which are contemplated in the future, it might be worth while to undertake preliminary feasibility studies to determine whether detailed studies are worth while.

#### 2. Air Conditioning

It is anticipated that the trend to air condition buildings in Canberra and throughout Australia will continue. The result of such a trend would be that within a few years all new university buildings would be air conditioned and efforts would be made to air condition existing buildings.

If this thesis is accepted, new buildings should be designed for air conditioning, even if the actual installation is delayed for the time being.

Such design would involve consequential architectural design to minimise heat gains and warm-air heating laid out for easy adaption to summer cooling. Plant rooms should be sized accordingly and electrical mains of adequate capacity provided. Extra costs will be involved in these provisions, but will be small compared with the eventual benefit.

Consideration needs to be given to siting of cooling towers or other heat-rejection equipment where it will cause least nuisance. When the time comes, a study of centralised refrigeration plants compared with individual plants should be undertaken.

#### Street Furniture

The items referred to as street furniture include signs, rubbish bins, outdoor seats, lighting columns, cycle racks, etc. The present standards are pleasing in themselves and have the great virtue of displaying a consistent design attitude. It would be rewarding to extend the same influence to the intimate details of parking areas, which are often unsightly and inefficient in their detail. Similarly, outdoor sporting equipment is less attractively designed than it might be. Tennis court enclosures, practice nets, field track equipment and similar sporting necessities are frequently prominent in the landscape and are interesting subjects for good design.

The importance of street furniture in establishing the quality of group developments has already been mentioned - perhaps unnecessarily, since the University has achieved exceptionally high standards in these matters. The University Designer (Mr Derek Wrigley) has noted that the NCDC is adopting many of the University's designs, which is a fitting compliment. It is desirable that the City and University should have some common design elements, subject always to the University retaining the right to suit its own needs rather than those of Canberra City. He adds that if needs be the University should be an experimental body, putting into practice what it believes to be right.

We endorse the policies that are being implemented by Mr Wrigley and recommend that they should continue to make their important contribution to the campus environment.

## Additional Studies

This report touches lightly on a number of important planning matters which require deeper study than has been possible in the time and with the information available. Some of these can be expected to follow in the normal course of present planning studies. Others of a more specialised nature might well be made subjects of separate investigations.

The following list is not necessarily complete:

Development costs:	Estimates of the costs of implementing the development proposals
Area studies:	Detailed design studies of the main group developments
Residential accommodation:	Investigation of needs and attitudes influencing the types and character of student housing (see Part II)
Multi-level parking:	Economic feasibility study to confirm the suggestions set out in Part III
Lecture theatres:	Examination of numbers, sizes and locations in relation to enrolments and course structures; programming for maximum seat occupancy; side effects of modern teaching aids, etc.
Energy sources, boiler plant and air conditioning:	Detailed examination of needs and trends influencing the expansion of boiler plant and associated services, as outlined in Part III
Central food service:	Completion of studies to determine policy as to whether this should be pursued, and if so, by what means
Audio-visual aids including educational TV:	Investigation of new techniques and equipment and determination of policies regarding their use
Landscape design:	Preparation of a long-range plan covering the design and implementation of landscape development.

### Maintaining the Site Plan

The process of planning for long-range development is desirably a continuous cycle of investigation and analysis of needs, establishment of functional requirements, planning, design and implementation, followed by evaluation of results. The objective of this approach is to ensure that decision making is based on fact and realistic weighing of alternatives, rather than on intuitive assumptions.

Growth and time bring changes of physical needs and of philosophical approach. To cope with change in a continuing programme it is necessary to be able to measure it. How can material changes be measured? With computer technology available, what is needed is a memory bank which at any time can provide information about a wide range of variables that can be sorted in various ways to provide accurate current statistics. This, with the assistance of appropriately designed computer programmes, can assist in studying the interactions of the various aspects affecting planning, leading to greater efficiency in the use of buildings and to opportunities for reducing capital outlay.

The information to be stored includes the following:

Student enrolment:	personal particulars academic records parking requirements residential status curricula desires subjects enrolled exam results student/staff ratios tutorial and lecture programmes, etc.
Members of staff:	similar particulars as appropriate
Traffic and parking:	the results of surveys of traffic movement and parking use
Building accommodation:	rooms available where they are types of rooms
Curricula factors:	numbers and times of lectures, tutorials, laboratory sessions, etc.
Servicing of buildings:	deliveries, incidence of maintenance calls, etc.

	1968	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988
Building retirement programme:											
Recreational facilities:											
Development finance:											
Full-time Postgraduate	410										
Part-time Postgraduate	120	150	200	220	240						
Full-time Undergraduate	1,440	1,700	2,000	2,300	2,600	2,900	3,200	3,500	3,800	4,100	4,400
Part-time Undergraduate	1,570										
Day-Total Students	3,540										
STAFF											
Academic	450										
Administrative	875										
Technical	300	325	350	400	440	480	520	560	600	640	680
Service and Other	425	455	485	510	545	580	620	660	700	740	780
Sub-Total Staff	2,050	2,435	2,825	3,295	3,805	4,325	4,845	5,365	5,885	6,405	6,925
TOTAL POPULATION	6,170	6,885	7,615	8,375	9,145	9,935	10,715	11,545	12,375	13,205	14,035

Source of information: Memoranda from the Deputy Vice-Chancellor to Mr Simmonds, dated 16 November 1968.

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1978 (Optimum) + 40%	1978 (Optimum) + 40%
<b>STUDENTS</b>											
Full-time Postgraduate	410	500	600	650	700	750	800	850	900	1,040	1,456
Part-time Postgraduate	120	150	200	220	240	250	250	250	250	260	364
Full-time Undergraduate	1,440	1,700	2,000	2,300	2,600	3,000	3,400	3,900	4,400	5,360	7,504
Part-time Undergraduate	1,590	1,700	1,800	1,900	2,000	2,000	2,000	2,000	2,000	1,340	1,876
Sub-total Students	3,560	4,050	4,600	5,070	5,540	6,000	6,450	7,000	7,550	8,000	11,200
<b>STAFF</b>											
Academic	850	910	975	1,040	1,105	1,160	1,210	1,255	1,295	1,385	1,940
Administrative	875	935	995	1,055	1,115	1,155	1,190	1,190	1,190	1,270	1,780
Technical	500	535	570	600	640	660	680	680	680	725	1,015
Service and Other	425	455	485	510	545	560	580	580	580	620	865
Sub-Total Staff	2,650	2,835	3,025	3,205	3,405	3,535	3,660	3,705	3,745	4,000	5,600
<b>TOTAL POPULATION</b>	<b>6,110</b>	<b>6,885</b>	<b>7,625</b>	<b>8,275</b>	<b>8,945</b>	<b>9,535</b>	<b>10,110</b>	<b>10,705</b>	<b>11,295</b>	<b>12,000</b>	<b>16,800</b>

Source of information: Memorandum from the Deputy Vice-Chancellor to Mr Simmonds, dated 14 October 1968.



TABLE 1 INSTITUTE OF ADVANCED STUDIES

School or Faculty	1968		1978		1978 + 40%	
	Persons	EFTS	Persons	EFTS	Persons	EFTS
	RSBS	15	30	100	200	100
RSChem	14	28	100	200	100	200
RSPacS	61	122	110	220	110	220
RSSS	57	114	110	220	110	220
JCSMR	52	104	110	220	110	220
RSPHysS	78	156	110	220	110	220
RSNR	-	-	10	20	70	140
RSArch	-	-	-	-	50	100
RSEngS	-	-	-	-	50	100
RSAgS	-	-	-	-	50	100
RSVetS	-	-	-	-	50	100
TOTAL	277	554	650	1,300	910	1,820

Source of information: Memorandum from the Deputy Vice-Chancellor to the Director, dated 14 October 1968.

TABLE 2 SCHOOL OF GENERAL STUDIES

Faculty or Department	1968			1978			1978 + 40%		
	Under-graduate	Post-graduate	Total	Under-graduate	Post-graduate	Total	Under-graduate	Post-graduate	Total
Arts	1,061	194	1,255	2,444	439	2,883	3,422	614	4,036
Economics	291	42	333	857	149	1,006	1,199	209	1,408
Law	298	6	304	450	94	544	630	132	762
Oriental Studies	127	33	160	429	74	503	600	104	704
Chemistry	70	45	115	190	32	222	266	45	311
Geology	32	40	72	90	28	118	126	39	165
Physics	50	30	80	140	23	163	196	32	228
Botany	30	30	60	85	21	106	118	29	147
Forestry	200	26	226	250	52	302	350	73	423
Zoology	40	30	70	155	32	187	216	45	261
Psychology	80	25	105	160	32	192	224	45	269
Biochemistry	10	-	10	70	16	86	98	23	121
Microbiology	-	-	-	70	16	86	98	23	121
Physiology	-	-	-	70	16	86	98	23	121
Genetics	-	-	-	70	16	86	98	23	121
Medicine	-	-	-	500	-	500	700	-	700
TOTAL	2,289	501	2,790	6,030	1,040	7,070	8,439	1,459	9,898

The estimates of accommodation to be provided in teaching buildings have been based on area rates which were derived from an averaging of the actual rates applying in a number of universities at home and abroad from which data were available. The area rates apply to normal teaching departments and include provisions for research of the kind normally carried out in such departments, but not that of special research schools.

The rates are expressed as square feet per EFTS (Equivalent Full Time Student), using the AUC definition, i.e.

1 Full time postgraduate	=	2 units	
1 Part time postgraduate	=	1 unit	
1 Full time undergraduate	=	1 unit	
1 Part time undergraduate	=	$\frac{1}{2}$ unit	
(1 External student	=	$\frac{1}{4}$ unit)	Not applicable at ANU

## SCIENCE DEPARTMENTS

## General teaching areas including

Tutorial rooms

Tutorial preparation and store rooms 27 sq.ft./EFTS

## Teaching laboratories including

Elementary and advanced laboratories

Preparation rooms

Service rooms

Stores 77 sq.ft./EFTS

## Research facilities for

Staff

Postgraduate students

Full-time research personnel and including ancillary facilities 82 sq.ft./EFTS

## SCIENCE DEPARTMENTS (Cont'd)

## Service rooms including

Staff common rooms

Student common rooms

Administrative offices

Technicians facilities

Workshops

Central Store 42 sq.ft./EFTS

## General facilities including

Animal Houses

Glasshouses

Garages

Stores for field equipment

Mechanical equipment rooms 20 sq.ft./EFTS

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 248 sq.ft./EFTS



## Method of Forecasting Parking Space Demand

The following table is based on Table 14 of Notes on Basic Data and Forecasts, Canberra City-ANU Circulation and Parking Study, by Development Planning & Research Associates.

The same method of forecasting parking space demand has been used in Table 1 below. In this method, the number of spaces required equals

the number of persons  
multiplied by  
the percentage eligible to park  
multiplied by  
the percentage on the campus on an average day  
multiplied by  
the percentage of car drivers  
multiplied by  
the percentage on campus at the time of peak demand

The figures in Column 2 of the table were obtained from the following sources:

Staff - Site Planner's Brief

Resident Students - Information-Discussion Paper No.25

Non-resident Students - Resident students subtracted from total student number in the Site Planner's Brief

Part-time to Full-time Ratios - The ratios used were: undergraduates, one part-time to four full-time students; postgraduates, one part-time to four full-time students.

The percentages in Columns 3-6 were taken from the above-mentioned DPRA report, Table A-2.

The figures in Column 7 represent the number of car-parking spaces required if the percentages in Column 5 are used.

The total number of visitors' car-parking spaces was estimated at 7½% of the total staff figure.

The total number of official cars was estimated at 250 cars for 1978 and post-1978, i.e. approximately twice the 1968 figure.

TABLE 1 PARKING SPACE DEMAND

1 Category	2 Number	3 Per Cent Eligible to Park	4 Per Cent On Campus on Average Day	5 Per Cent Car Drivers	6 Per Cent On Campus at Time of Peak Demand	7 Number of Car-parking Spaces Required
Staff	2,628	100	95	65	85	1,370
	4,000	100	95	50	85	1,615
	5,600	100	95	50	85	2,261
Full-time Day Students	921	100	85	28	75	163
	2,620	100	85	50	75	835
	3,668	100	85	50	75	1,170
Part-time Day Students	1,679	100	50	74	40	250
	1,600	100	50	60	40	192
	2,240	100	50	60	40	269
Resident Students	958	100	100	43	100	412
	3,780	100	100	50	100	1,890
	5,292	100	100	50	100	2,646
TOTAL	6,186					2,195
	12,000					4,532
	16,800					6,346
Visitors and Official Cars	-	-	-	-	-	324
						550
						720
Total Car Parking						2,519
						5,082
						7,066

Note: The top figure in each bracket of three refers to the situation measured on campus on 18 June 1968; the middle figure to the estimated demand for a campus population of 12,000 (1978); the bottom figure to the estimated demand for a campus population of 16,800 (post-1978).

## Geographical Distribution of Population

The distribution of staff shown in Table 2 was taken from a memorandum from Mr Simmonds to the Deputy Vice-Chancellor dated 12 January 1969. The distribution of students was taken from YFA Information-Discussion Papers No.6 and 7 for the Life Sciences, Physical Sciences, Arts-Economics and Oriental Studies-Law zones; Information-Discussion Paper No.25 for the Residential Zone; and a letter dated 13 January 1969 from YFA to DPRA (a copy of which was sent to the Registrar of Property and Plans) for the JCSMR-RSPhysS and Medicine zones.

## Geographical Distribution of Parking Spaces

Table 3 represents the distribution of the total car-parking spaces from Column 7 of Table 1.

Car-parking space has been divided into two types - local parking adjacent to the buildings served, and peripheral parking within a few minutes walk of the buildings served. Local parking is assumed to be restricted to senior staff, authorised visitors and official vehicles.

In estimating the local parking component, the following information was used:

12½% of the total staff are classified as senior staff (ref. Information-Discussion Paper No.51);

Visitors have been estimated at 7½% of the total staff figure (see Table 1);

Official vehicles have been estimated at 250 (see Table 1).

The peripheral parking component contains the balance of the staff parking space allowance and the whole of the student parking space allowance (see Table 1).

The total car-parking spaces for staff, students and visitors were distributed geographically using the population proportions from Table 2. The official vehicles were distributed geographically using the 1968 distribution (ref. Distribution of Official Cars, compiled by Mr Simmonds, received February 1969).

TABLE 2 GEOGRAPHICAL DISTRIBUTION OF POPULATION

Zone	Staff	Full-time Students	Part-time Students
Life Sciences	180	132	98
	590	488	-
	874	684	-
Physical Sciences	290	102	68
	525	250	-
	735	350	-
Arts-Economics	330	360	1,272
	530	1,110	1,317
	742	1,554	1,845
Oriental Studies-Law	820	237	241
	1,140	448	283
	1,596	628	396
Peninsula	813	90	-
	770	124	-
	1,078	172	-
Residences	90	931	27
	200	3,780	-
	280	5,292	-
Maintenance	105	-	-
	125	-	-
	175	-	-
Medicine	-	-	-
	120	200	-
	168	280	-
TOTAL	2,628	1,852	1,706
	4,000	6,400	1,600
	5,600	8,960	2,240

Note: In Tables 2 and 3, the top figure in each bracket refers to the situation measured on campus on 18 June 1968; the middle figure to the estimated demand for a campus population of 12,000 (1978); the bottom figure to the estimated demand for a campus population of 16,800 (post-1978).



TABLE 3 GEOGRAPHICAL DISTRIBUTION OF PARKING SPACE

Zone	Local				Peripheral			Total
	Senior Staff	Visitors	Official Vehicles	Total	Other Staff	Students	Total	
	23	13	26	62	71	38	109	171
Life Sciences	74	45	55	174	165	146	311	485
	104	63	65	231	231	216	447	678
Physical Sciences	36	22	11	69	115	28	143	212
	65	40	20	125	146	72	218	343
	92	55	24	171	204	107	311	482
Arts-	41	25	4	70	131	253	384	454
Economics	66	40	15	121	148	472	620	741
	92	56	18	166	207	698	905	1,071
Oriental	103	61	34	198	324	78	402	600
Studies-Law	142	86	65	293	318	168	486	779
	200	119	78	397	445	248	693	1,090
Peninsula	102	61	21	184	322	16	338	522
	96	58	30	184	215	55	270	454
	135	81	36	252	300	81	381	633
Residences	11	7	2	20	36	412	448	468
	25	15	10	50	56	1,890	1,946	1,996
	35	21	12	68	78	2,646	2,724	2,792
Maintenance	13	8	29	50	42	-	42	92
	16	9	50	75	35	-	35	110
	22	13	60	95	49	-	49	185
Medicine	-	-	-	-	-	-	-	-
	15	9	5	29	33	64	97	126
	20	12	7	40	46	90	136	176
TOTAL	329	197	127	653	1,041	825	1,866	2,519
	499	300	250	1,049	1,116	2,867	4,033	5,082
	700	420	300	1,420	1,560	4,086	5,646	7,066

## TABLE 3 CAPACITY OF EXISTING CAR PARKS

## Phasing Studies

Table 4 plots the required parking spaces (from Table 3 above) against the available number of parking spaces at grade.

TABLE 4 AVAILABLE AND REQUIRED PARKING SPACES BY TRIENNA

CATEGORY	1967-69	1970-72	1973-75	1976-78
<b>LOCAL</b>				
Required	650	810	930	1,050
Available	1,080	1,080	1,080	1,080
<b>PERIPHERAL</b>				
Required	1,420	1,680	1,930	2,090
Available	4,960	3,370	2,950	1,630
<b>RESIDENCES</b>				
Required	450	1,550	1,840	1,950
Available	330	870	1,140	1,410
<b>TOTAL</b>				
Required	2,530	4,040	4,700	5,090
Available	6,310	5,320	4,720	4,120

Note: Figures are rounded off to the nearest ten.

TABLE 5 CAPACITY OF EXISTING CAR PARKS

Car park No.	Capacity	Car park No.	Capacity	Car park No.	Capacity	Car park No.	Capacity
101	51	121	29	141	20	161	122
102	20	122	15	142	38	162	12
103	36	123	25	143	140	163	12
104	7	124	50	144	10	164	8
105	10	125	19	145	-	165	16
106	10	126	64	146	42	166	54
107	30	127	62	147	58	167	40
108	30	128	33	148	108	168	54
109	44	129	49	149	60	169	7
110	54	130	11	150	60	170	38
111	18	131	45	151	56	171	208
112	30	132	20	152	26	172	65
113	30	133	15	153	-	173	60
114	15	134	8	154	97	174	70
115	10	135	10	155	40	175	26
116	20	136	20	156	46	176	4
117	17	137	57	157	1	177	26
118	30	138	55	158	63	178	160
119	6	139	20	159	66	179	10
120	37	140	9	160	58	180	30

## Note:

The numbering of existing car parks is that used for 1968 Campus Traffic Survey. The capacity of these car parks was taken from a drawing supplied by Mr Simmonds. Where a capacity was not shown on this drawing, the capacity given in the table above is equal to the maximum number of cars that were parked in such areas the day of the survey.

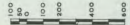


CAR PARKING

PHASING OF DEVELOPMENT 67-69

TABLE 6 CAPACITY OF NEW CAR PARKS

Car park No.	Capacity	Car park No.	Capacity
201	200	217	150
202	200	218	40
203	400	219	15
204	500	220	15
204A	100	221	20
205	20	222	75
206	150	223	20
207	20	224	25
208	600	225	1,000
209	400		
210	800	Maximum expanded capacity of existing car parks	
211	20		
212	600	107	50
213	1,000	118	250
214	75	129	75
215	10	142-3	300
216	100	158	75



CAR PARKING  
PHASING OF DEVELOPMENT 1978 + 40%

## Existing Buildings

Tables 1 and 2 summarise the residential accommodation existing on campus in 1968. They include additional facilities that have already been planned. The lists were compiled from Information Discussion Papers No 10, 25 and 28.

TABLE 1 NON-STUDENT ACCOMMODATION

Type	No.	Notes
Official Residences	4	These are occupied by the Vice-Chancellor and the Wardens of Bruce, Burton and Garran Halls. In future, all Halls of Residence will be required, wherever possible, to incorporate accommodation within the structure of the Hall itself
Houses used for Residential Purposes	23	These are occupied by both members and non-members of the University. Seventeen of the houses will be affected by either the construction of the Acton Saddle expressway or the notional reservation of the site for future buildings. The tenancies of these buildings can be regarded as temporary. The remaining six houses are not affected by the proposed developments. There are no plans to build further accommodation for staff on the campus
Houses used for Non-residential Purposes	3	These are occupied by the University Information Section (which will be accommodated elsewhere, ref. YFA Information-Discussion Paper No. 6), the ANU Women's Club, and the National Heart Foundation. These houses will also be affected by future developments, so they can be regarded as temporary buildings

TABLE 2 STUDENT ACCOMMODATION

Facility	No. of Undergraduate Places	No. of Postgraduate Places	Expansion Provisions, Notes, etc.
Bruce Hall	200	10	No expansion planned
Burton Hall	225	15	No expansion planned
Garran Hall	225	15	No expansion planned
John XXIII	270	30	This college was still under construction in 1968. Students were accommodated in Lennox House, a temporary building subject to phasing study
Ursula College	190	10	No expansion planned
Burgmann College	470	30	The first stage of this college (provision of 250 places) is expected to be available by 1971; the completion date of the second stage is uncertain
University House	-	approx. 100	No expansion planned
Second Postgraduate Hall	-	100	A grant of \$500,000 is currently available in the 1967-69 triennium to construct a second postgraduate hall to accommodate 100 single students. However the University has decided to meet immediate needs by building accommodation for 100 single students in separate units at a site off campus at the corner of Northbourne Avenue and Boldrewood Street (p. 22 Site Planner's Brief)



## Projected Requirements

TABLE 3 DISTRIBUTION OF RESIDENTIAL ACCOMMODATION

Hall, College, etc.	No. of Residential Places Available	
	Undergraduate	Postgraduate
Bruce Hall	200	10
Burton Hall	225	15
Garran Hall	225	15
John XXIII College	270	30
Ursula College	190	10
Burgmann College	470	30
University House	-	100
Flats at corner of Northbourne Avenue and Boldrewood Street		100
Additional accommodation required to meet the needs of 12,000 population	1,630	120-260
Total requirement at 12,000 population	3,210	430-570
Additional accommodation required to meet the needs of 16,800 population	1,290	170-230
Total requirement at 16,800 population	4,500	600-800

Table 3 shows the distribution of residential accommodation for undergraduate and postgraduate students, at total campus populations of 12,000 and 16,800 (the total of 12,000 plus 40% as directed in the Site Planner's Brief).

The total number of students seeking accommodation at 12,000 population was taken from Information-Discussion Paper No. 25. The range in the postgraduate numbers is caused by the indication that a proportion of students would seek flat-type accommodation if it were provided by the University.

The total number of students seeking accommodation at 16,800 population was obtained by applying an expansion of 40% to the figures for 12,000 population.

The number of places available in existing and planned residential buildings was taken from Table 1.

It will be noted that if a density of 100 persons to the acre is used for residential accommodation, then the area requirement at 12,000 population will be 17.5 to 18.9 acres in addition to the existing and planned halls and colleges. At 16,800 population another 14.6 to 15.2 acres will be required.

## Buildings

Table 1 is a summary of all the known and projected sports buildings that exist or are to be provided on the site for a campus population of 12,000.

This list was extracted from the total list of facilities submitted to the University on 16 January 1969 (ref. letter to the Registrar of Property & Plans, YFA file, 1050/2.1A).

No attempt has been made to tabulate the additional sports buildings that may be required for a campus population of 16,800 (the total of 12,000 plus 40% as directed in the Site Planner's Brief).

TABLE 1 SPORTS BUILDINGS

Facility	Existing 1968	Planned Expansion
Indoor Recreation and Sports Centre	-	Stage 1 of 25,253 sq.ft. (AUC 70/72 Submission) Stage 2 costing \$200,000 (AUC 73/75 tentative programme). This building is planned to include a Field House, six squash courts and associated facilities. This is in accordance with the results of the survey by P.A. Management Consultants
Heated Indoor Swimming Pool	-	Recommended by P.A. survey. A 25-metre heated enclosed pool was suggested by the ANU Sports Union in March 1967 (ref. S342/1967)
South Oval Change Rooms	1,715	No expansion indicated
North Oval Change Rooms	3,700	A grandstand to seat 3,500 spectators costing \$350,000 (AUC 73/75 tentative submission)
Tennis Pavilion	570	Temporary building, subject to phasing study. A larger club house and storage facilities were suggested by ANU Sports Union in 1967 (ref. S345/1967)
Boatsheds	5,100	Temporary buildings, subject to phasing study. Proposed new boathouse of 4,360 sq.ft. (AUC 70/72 Submission)
Landing Stage		Existing landing stage is dilapidated. A new movable stage is to be constructed pending the siting of the new boathouse (ref. YFA letter file 1050/2.1A)

### Playing Fields and Courts

Table 2 summarises all the known and projected playing fields and courts that exist or are to be provided on the site for a campus population of 12,000

This list was extracted from the total list of facilities submitted to the University on 16 January 1969 (ref. letter to the Registrar of Property & Plans, YFA File, 1050/2.1A).

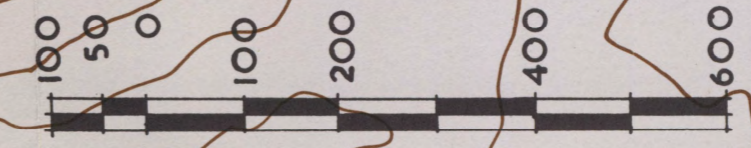
No attempt has been made to tabulate the additional playing fields and courts that may be required for a campus population of 16,800 (the total of 12,000 plus 40% as directed in the Site Planner's Brief).

TABLE 2 PLAYING FIELDS AND COURTS

Sport	Existing Facilities	Requirements for 12,000 Population
Athletics	North Oval used	One properly constructed arena
Australian Rules	North and South Ovals used	One permanent field
Baseball	South Oval used	One permanent diamond
Cricket	North and South Ovals used	Two permanent fields
Hockey	Two temporary fields which will be required for parking and/or halls of residence	Two permanent fields
Rugby	One temporary field which will be required for parking and/or halls of residence	Three permanent fields
Soccer	North and South Ovals used	One permanent field
Softball	South Oval used	Two permanent diamonds
Basketball	Two courts north of South Oval	Two permanent courts
Tennis	Six courts east of South Oval, one near the Staff Centre, one near Lennox House	Two additional courts applied for (AUC 73/75 tentative programme)



**LEGEND**  
 ■ EXISTING BUILDINGS  
 ▨ ADDITIONS 1968-78  
 - - - POSSIBLE FURTHER ADDITIONS



**AUSTRALIAN NATIONAL UNIVERSITY  
 DEVELOPMENT PLAN APRIL 1969**

ROY SIMPSON SITE PLANNER  
 YUNCKEN FREEMAN ARCHITECTS PTY. LTD.

