THE FLINDERS UNIVERSITY OF SOUTH AUSTRALIA

CAMPUS PLAN REVIEW

G J Harrison

1992

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Foreword

The Flinders campus is among the University's major assets. It provides an environment for learning and scholarship that is both functional and beautiful. These qualities have been achieved by developing the campus over the last three decades within the framework of the original plan and the 1971 Review.

The present Campus Plan Review, the third in the series with which the University Architect has been associated, has been produced as a framework for the further development of the University in the decades ahead.

This Review is an exciting document, which will stimulate a diversity of responses as new needs become apparent. Its implementation will produce an even better environment for those who come to Flinders in the future.

I congratulate its author, Mr Geoff Harrison, the University Architect.

Deirdre F Jordan
Chancellor

Preface

This Campus Plan Review has been prepared by the University Architect as an integral part of Flinders University's forward planning operations, following the adoption of the University's Strategic Plan.

The Review suggests how the potential of the Flinders site can be taken up in the future to meet the needs of substantially larger numbers of students and staff than the earlier plans. It shows how the projected requirements of the academic community may be accommodated by staged growth, and it indicates how the environmental quality that distinguishes the Flinders campus may be enhanced further.

The plan outlines a framework for future growth which includes residential accommodation and recreation areas as well as ample academic facilities. It purposely leaves many of the details to be filled in as further studies are completed. Some of these will be carried out in the coming year as mentioned in the document, and others at later stages, as the directions and balance of future academic development for the medium and longer term become clear.

The seven recommendations that support the Review have been endorsed by the Buildings and Grounds Sub-Committee; and recommended to the University Council by the Planning Committee. The Council received the Review and resolved to accept the recommendations on 27 November 1992.

The Review provides a vision for the future of the Flinders campus that is expected to guide its development of the campus for many years to come.

Vice-Chancellor

Acknowledgments

Generous assistance and comment regarding the Review has been volunteered by many individuals and groups, including Faculty Heads and Deans, academic and general staff, students, and interested individuals.

A Reference Group, comprising Mrs K Baudinette, Dr N Clark, Ms L Goold, Prof M McCaskill, Ms K Prickett, Ms E Stratford, Mr I Wallace, and, since September 1992, Mr B Abbey, has been a valued source of information and continuing advice.

A working party comprising Ms G Dooley, Mr B Goodhind, and Ms J Mahoney assisted with the student survey.

Contributions from many sections of the University to the production of the Review have been coordinated by Ms P Smith of my Office. Diagrams have been prepared by the Buildings and Property Division and the Geography Discipline. Photographs have been provided by Photographic Services and the Public Relations and Information Office.

The help of all who have contributed to the Review is gratefully acknowledged.

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1 INTRODUCTION

1.1 Nature of a Campus Plan

In essence, a campus plan is a set of guidelines for the development of a university site over time which aims to create by design a functional, sustainable and attractive physical environment for the activities of a university.

The guidelines may relate to many aspects of campus development - land use zoning and density, access and traffic, engineering services, building form and, importantly, landscape. They may be seen as a set of constraints but alternatively they may provide a framework for creative campus design.

Campus design usually involves coordinating the layout of the site and the design of the engineering works, buildings and landscape to create a coherent physical environment that can support academic activity both functionally and aesthetically.

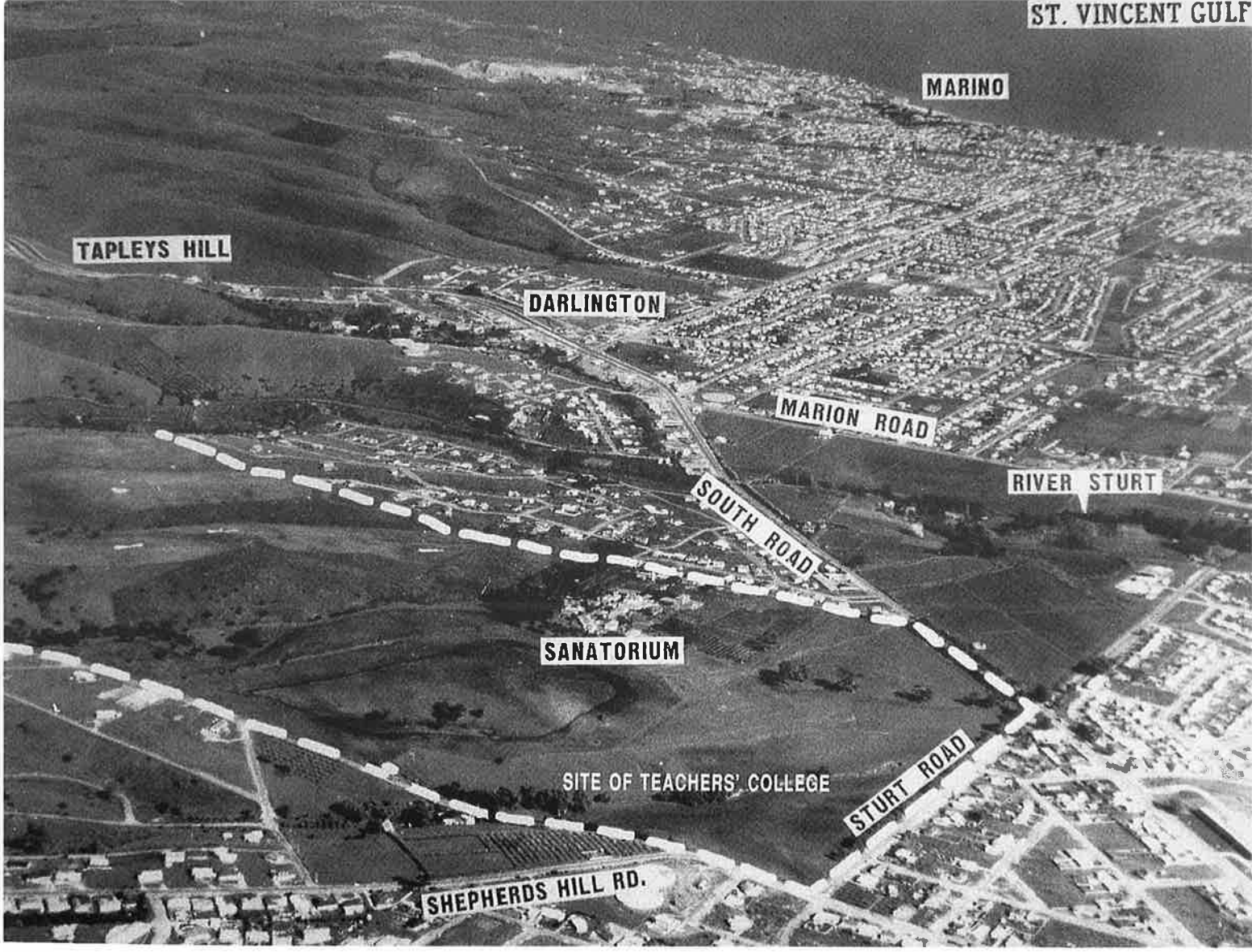
The realisation of design concepts for university campuses is normally slow. Campuses are likely to develop gradually over a century or more. Academic objectives may be changed along the way by internal and external forces. Growth may be constrained by economic limitations. Landscape can take decades to mature.

So this Review will not prescribe future development in detail. It will attempt to provide guidelines for the future that are both firm and clear enough to allow the planners and designers of individual elements to work confidently within them, and at the same time loose and flexible enough to accommodate future change.

1.2 History of Site Planning at Flinders

The original plan for Flinders University[1], published in 1964, determined the pattern of land use, the layout of the roads and initial building groups and guidelines for the future development of the campus. The plan was reviewed in 1971[2] following the decisions to build the Flinders Medical Centre on the site and a second major road to the University (Flinders Drive).

Since 1971 the revised campus plan has provided the framework for the development of the Sports Centre, Social Sciences South, Earth Sciences, Biological Sciences Stage 3, Student Accommodation, Information Science and Technology, Engineering, the University Club and Business/Law buildings.



Aerial view from the North-East, 1963
Source: The Advertiser

1.3 Need for the Review

A further review of the plan covering the Sturt campus as well as the other parts of the University is needed following the recent merger of the former Sturt campus of the South Australian College of Advanced Education and the former Flinders University.

1.4 Review Process

The Campus Plan Review has involved assessing possible future needs for facilities of various types - teaching and research space, common facilities, residential accommodation and car parking. The assessments have been based on projections of student numbers to the year 2010 provided by the Planning Services Unit.

Plans of the site, roads and buildings consolidated by computer have provided a dependable base on which to consider possible future building and site development.

The Review process has included extensive and progressive consultations with numerous individuals and groups within the University, and these have been considered with a Reference Group established to assist with the Review. Consultations have occurred with officers of Flinders Medical Centre and local authorities and there has also been contact with representatives of resident groups on and off the campus. Over a thousand students responded to the student survey on 5 August 1992. A brief report on the survey is attached (Appendix A). Much useful information and advice has been obtained as a result of these consultations.

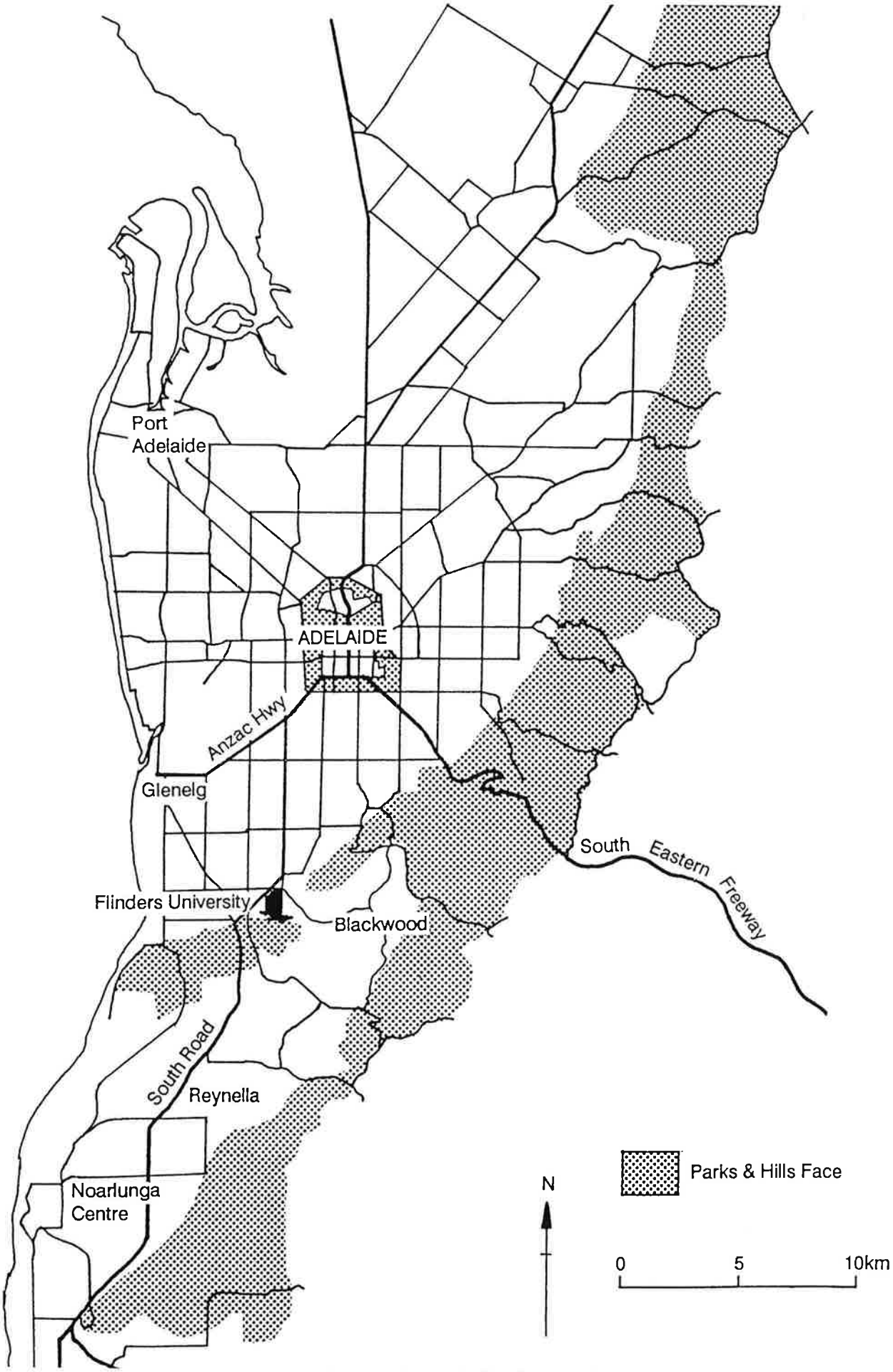


Diagram 1: Location of Flinders University

2 THE SITE

2.1 Location in Relation to Southern Region

Flinders has an outstanding site in a key location in relation to the southern metropolitan area of Adelaide and is in a commanding position with views of the hills, the plain and the gulf. The location is shown on Diagram 1.

The site is 8 kilometres south of the city centre and 3 kilometres from the coastline to the west. It is on South Road, the main vehicular route to the southern suburbs, and it is on Sturt Road, a major cross-route linking regional centres to the east and west.

2.2 History of the Site

The land on which the University is built was cleared and developed as a farm through the second half of the nineteenth century. From 1920 the property was used as a tuberculosis sanatorium. Various chalets and staff quarters were added to the farm buildings that were located where Flinders Medical Centre now stands. The buildings were demolished after the sanatorium closed in 1961.

2.3 Area of Land

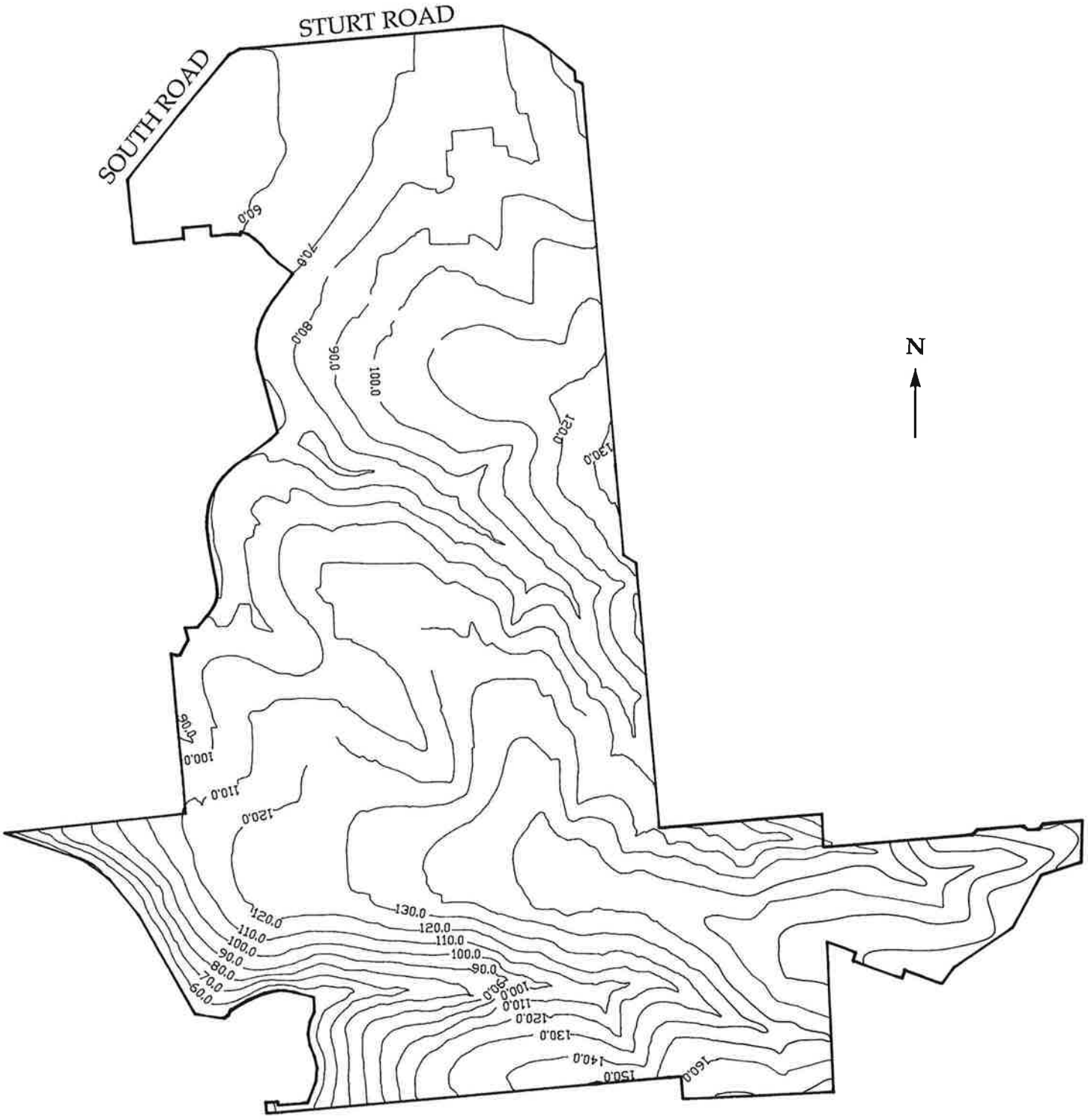
The original area of the site made available for University development by the State was 142 hectares. An adjacent 8 hectares was allocated for the Bedford Park Teachers College (Sturt). These areas are in the City of Mitcham. The original 'Special Uses' zoning has been altered to 'Institutional'.

A series of land transactions have occurred since the University was established. Ten hectares of vineyard, west of South Road, was purchased for sports field development in 1966. In 1967, the University accepted additional land west of South Road in exchange for seven hectares of the campus needed for hospital development, and allocated a further five hectares south of the hospital site for the University medical school. In the early 1970s, several parcels of land south-east of the campus zoned 'Hills-Face' were purchased to meet possible long-term needs. In the late 1980s, the University contributed its land west of South Road to assist the establishment of Adelaide Science Park adjacent to the campus.

Following the merger with Sturt in 1991, Flinders University has a consolidated site of approximately 168 hectares. The site boundaries are shown on Diagram 2.

2.4 Topography

The site is on the escarpment of the Mt Lofty Range, which sweeps around the eastern and southern sides of Adelaide. It is steep and much of it is difficult to develop economically. Over 40 per cent of the site has a slope



Scale 1 : 11,000

Diagram 2: Boundaries of The Flinders University of South Australia

of more than 1 in 5 as the escarpment is intersected by a series of steep creek valleys.

Land with a slope of up to 20 per cent has been taken as suitable for building. There are two substantial areas of building land on the rounded hills of the escarpment, between the creek valleys. The area on the northern hill-top is about sixteen hectares and the southern one, comprising two ridges linked at the top to form a horse-shoe shaped area, has an area of some twenty hectares. There is also almost 20 hectares of flatter land at the foot of the escarpment which is the only area suitable for sports fields.

The land slopes and development areas are illustrated on Diagram 3, and Diagram 4 indicates the original proposal to concentrate residential building on area A and academic building on area B. Both diagrams are taken from the 1964 site development plan.

2.5 Landscape Character

When the site was made available for University development, it was run-down farmland. Almost all the native vegetation had been cleared. Hay was grown on the flatter land, the steep slopes were grazed by sheep and the inhospitable hill-tops produced stunted crops of barley. A group of Red Gums persisted in the creek bed near the north-east corner and a plantation of Stone Pines was established near the centre of the site. Scattered eucalypts had been left on some of the more sheltered slopes.

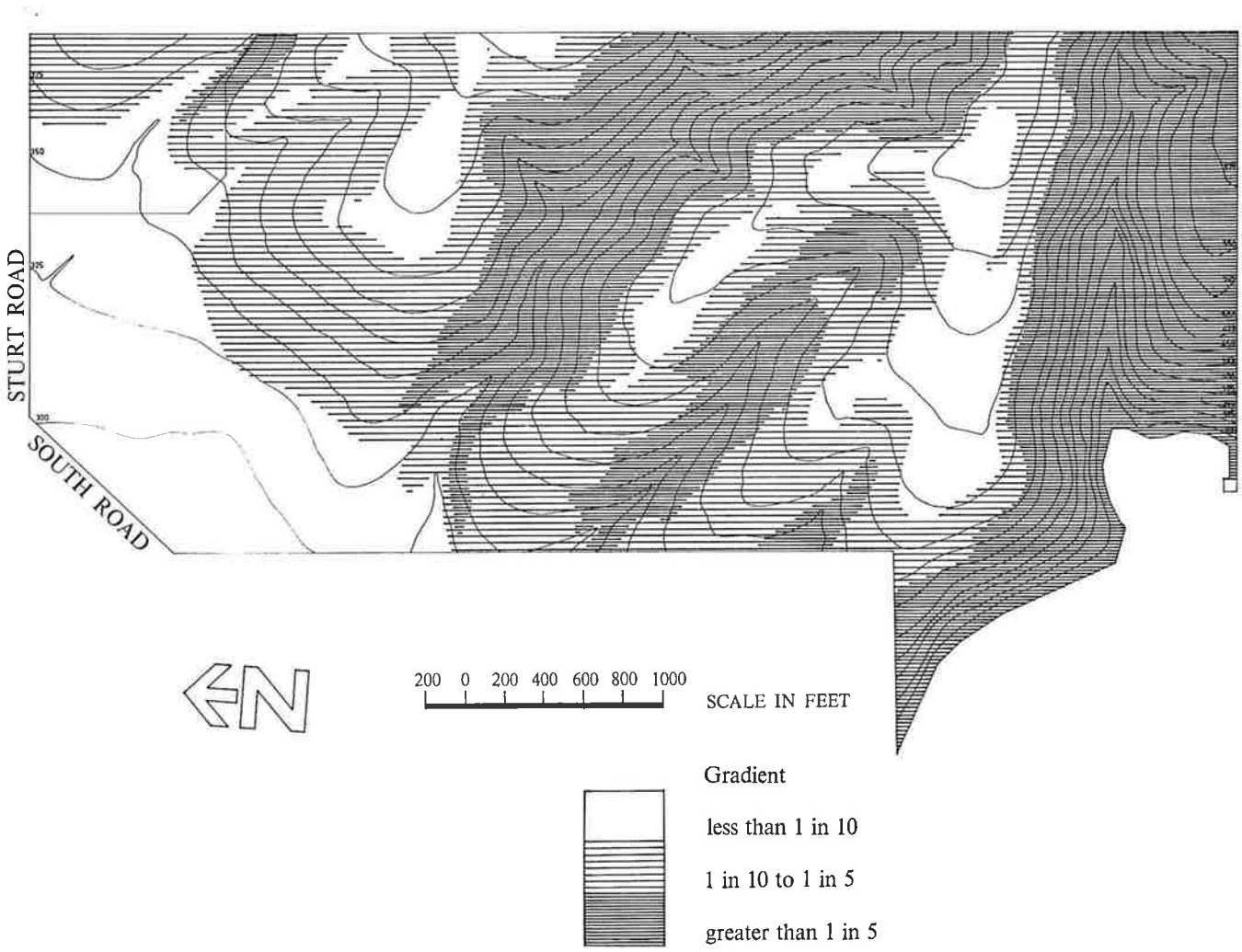


Diagram 3: Land Slopes

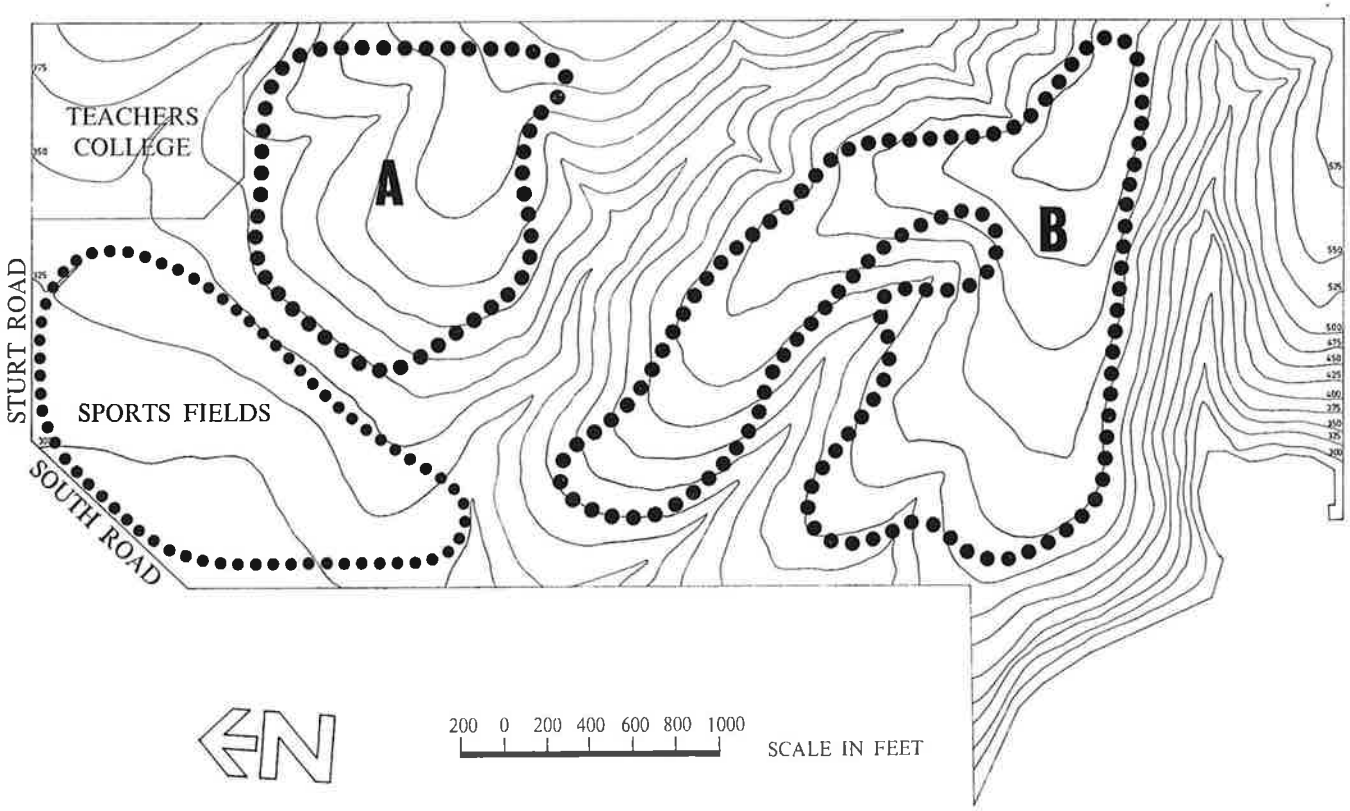


Diagram 4: Development Areas

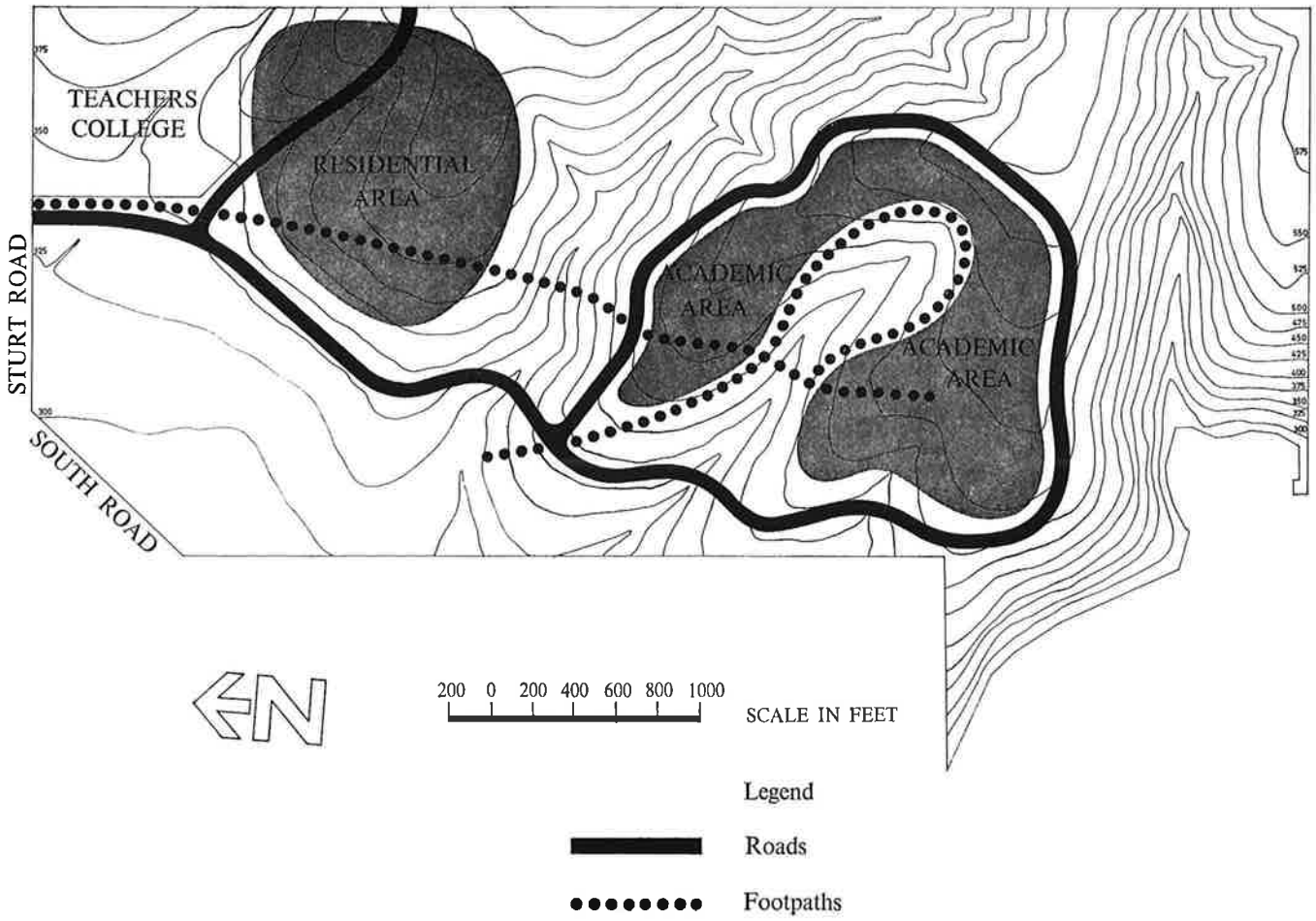


Diagram 5: Academic and Residential Development Sites

3 DEVELOPMENT 1963 - 1992

3.1 Outline

Site development commenced in 1964. The initial groups of academic buildings were opened early in 1966. Major building development at the University continued steadily until 1974 and then ceased until 1989. Building commenced on Flinders Medical Centre in 1972 and the final stage was opened in 1978. The Sturt complex was opened in 1967 and extensions were made in the late 1970s. University Hall was built in 1971, and the flats and townhouses in the late 1980s.

3.2 Campus Layout

Early decisions were taken by the University about the functions to which the various development areas would be allocated and about the density of building and the location of roads and engineering services.

As shown on Diagram 5 (also taken from the 1964 plan), the southern horse-shoe shaped ridge site was allocated for academic buildings and the smaller and more rounded ridge site to the north was allocated for residential development.

The two types of development were separated because their relative growth rates were unpredictable.

The density of development chosen for the academic buildings - three storey buildings on average, on 0.25 of the land (which gives a "plot ratio" of 0.75), was calculated to be just high enough to work as a pedestrian precinct while allowing the development of landscaped open space and car parking for staff within the building area; and it was thought to be high enough to accommodate fairly easily the 6000 Equivalent Full Time Student Units (EFTSU) ultimately expected. For the residential building area, a similar density of land use was proposed for halls of residence to allow the development of accommodation for up to two-fifths of the student population. Sturt was planned separately but at a similar density and with reference to the University planning in the early stages. Subsequently, Flinders Medical Centre was planned more compactly (as most hospitals are).

3.3 Roads

The University road system has University Drive following the contour from the main entrance on Sturt Road, a branch road (Sturt Drive) serving the residential area and Sturt, and a ring road around the outer shoulder of the horse-shoe shaped academic ridge towards the southern end of the site. Short spur roads lead to the buildings and there is local parking between the Ring Road and the buildings.

Flinders Drive, which also serves the Flinders Medical Centre, provides the second major entrance to the University from South Road.

In the residential area, a system of spur roads or terraces branching from Sturt Drive is partially developed. Road access to Sturt, originally via a separate entrance drive from Sturt Road, is now either via Sturt Drive or steep suburban streets to the east.

3.4 Academic Buildings

The main academic buildings at Flinders have been developed at the planned density, close together rather than scattered over the site, so that:

- clear areas of building land remain available beyond the built-up area and there is less need to disturb the occupants of existing buildings with infill building;

- landscaping and paving between the buildings can be completed to create a finished environment as part of each development;

- engineering infrastructure costs are incremental and minimal;

- pedestrian circulation between buildings is more convenient.

The buildings are regularly oriented, with their main windows facing north and south to limit solar heat gain from the east and west in summer. They are set on a series of terraces each 3.6 metres higher than the last, and are planned on a 3.6 metre square module that can be extended over the whole site. This helps to simplify the planning and achieve consistency of scale. The buildings have concrete framed structures to provide inbuilt capacity for relatively easy alteration to meet changing needs, with the columns relatively close together for economy.

The main academic buildings are planned in a pedestrian precinct from which vehicles are excluded. All the buildings are within 6 minutes' walk of each other. There are three pedestrian circulation systems within the academic precinct: the broad path around the central park and its extension across the dam and through the Mall to the bus stops at the Registry steps; an open system of cloisters and covered ways passing through the courtyards at ground level; and an enclosed system of upper level routes through the corridors and bridges linking the staff areas in adjacent buildings.

Within the horse-shoe ridge the valley is a park, with the dam (constructed with excavated material from the initial building sites) connecting the two arms of the horse-shoe towards the lower end and containing the lake.

The main campus buildings currently provide some 73000 gross square metres of accommodation for the faculties, library, administration, union, sports centre and ancillary activities and have a student population of approximately 5600 EFTSU.

View from the South, 1970
Source: Review of Development Plan 1971

Space is short overall because rapid growth in student numbers since 1983 and outstanding success in attracting research grants and research staff have not been matched by building expansion. The first major buildings at the main academic area for over 15 years were opened only this year and neither they nor further facilities currently under construction will meet the overall shortage. Individual groups of users will be particularly short of space because of its uneven distribution.

3.5 Sturt

The buildings at Sturt currently provide some 20000 gross square metres of accommodation for a student population of approximately 2200 EFTSU. The main buildings are 3-4 stories high and of prestressed concrete slab construction with columns relatively widely spaced, so structural alterations are difficult to make. The 2-storey library, completed in 1978, is built over the trunk sewer and stormwater drain from the adjacent suburb, Bellevue Heights. Consequently most of the undercroft needs to be left unenclosed. There are good facilities in the gymnasium and useful teaching facilities including the theatre and the science laboratories.

The road system linking the residential area and Sturt to the main academic area has already been described. A separate and more direct footpath over the residential hill and the footbridge has also been developed, extending the principle of separating pedestrians and vehicles. It is also the main route for engineering services between the residential and main academic areas. The footbridge, built in 1966, allows a climb of 25 metres down into the valley and up again to be avoided. The route allows access from the Registry to Sturt on foot in about 8 minutes.

3.6 Residences and Child Care Facilities

In its initial planning, the University aimed to have at least 10 per cent of students living on campus, and to increase the percentage to 35 per cent within two decades. These aims have not been attained.

Accommodation has actually been provided for approximately 3 per cent of students. This has resulted in far more daily commuting to the campus and has inhibited the development of after-hours activity at the University.

University Hall was opened in 1971 with accommodation for 200 students; alterations and additions in 1986 increased its capacity to 240. In recent years, townhouses have been built east of the Hall to house a further 60 people; accommodation for 50 more is to be built next year.

Child care facilities have been built in stages. Stage one was opened in 1976 and stage two opened in 1980. Currently child care provision is available for up to 135 young children in appropriate domestic-scale buildings.

3.7 Parking

Parking is now available for over 3500 cars on the campus in 16 car parks. The largest of these, Car Park 1, in the valley below the main academic precinct, is easily accessible by car but the climb from it on foot is steep.

The second largest group, Car Parks 2 and 3, involves driving to the top of the hill and walking back down to the buildings at present; these car parks were developed in advance of the buildings to which they will eventually relate, because relatively flat land allowed inexpensive construction.

Other car parks (numbers 4-9) around the main academic precinct, which were originally for staff, are well located between the Ring Road and the pedestrian-oriented building zone, but inadequate in size to meet local demand from staff and students. The car parks at Sturt provide 540 places including 170 in Car Park 16 constructed in 1991; the provision seems to be inadequate, as many people park at a distance on University Drive, on Sturt Road and in local suburban streets and then walk .

Parking at University Hall and the townhouses is adequate. There is pressure on parking adjoining the sports fields at weekends, but ample parking elsewhere on campus then.

Diagram 6 is a plan of buildings, roads and car parks developed to date.

3.8 Sporting Facilities

The University has two good gymnasia following the merger. There are also three squash courts and an equipment gym at the Sports Centre. Outdoor facilities include the swimming pool at Sturt, four ovals, two hockey pitches, fifteen tennis courts, and running and jogging tracks.

The sports fields are an important green space that is well used by students, staff and the local community, and adds considerably to the appearance and character of the main approach to the University. They also provide a very attractive prospect from the areas of the campus that overlook them.

3.9 Engineering Infrastructure

The engineering infrastructure on campus (apart from Sturt) has been planned and installed by the University. Public utilities stop at the boundaries of the site.

The engineering services within the campus include underground power lines, gas and water mains, communications cabling (copper and optical fibre), sewers and stormwater drains.

The various services follow the common service routes established in the initial campus plans. For the main academic precinct, a service ring route circles the central park beneath the bitumen pathway and short spurs are

taken to the buildings. The common service route extends through the Mall, across the footbridge and past University Hall to Sturt Road (without the water line at the northern end). The service route also extends from Biological Sciences to the western boundary near the pumphouse. Sewers generally run parallel to the supply services.

Stormwater is piped either to discharges into the natural creeks wherever practicable, or into the public mains at the boundaries. Roof water from the academic buildings is discharged through the park to the lake and the overflow is piped to the western boundary from there.

Sturt has a separate system of services drawing supplies from public utility lines nearby. The public stormwater and sewer mains from the Bellevue Heights subdivision traverse the campus from south-east to north-west, beneath the library and the oval, and the Sturt buildings are connected to them.

3.10 Landscape

The landscape now to be seen has virtually all been planted within the last three decades. This includes the trees in central park, on the Plaza, in the Mall and north of the Registry, the pine forest, the mixed native forest in the gully east of Social Sciences, the trees around the Sturt complex, the screen plantations on the eastern and southern boundaries and the trees on the ridge east of the tanks.

The plantings on the vacant land between Car Park 2 and the path that circles the Central Park are temporary, as are other plantings on potential building sites, but the great bulk of the trees are in areas intended to remain planted permanently.

The aim of the landscaping programme has been to preserve the expansive atmosphere of the site and to enhance it with broad areas of green sports fields, with dense forest stands in the steep valleys and with more intensive planting of trees, shrubs and groundcovers in the vicinity of the buildings. The courtyards have been treated individually to give each court its own particular character and sense of place.

The low rainfall, highly calcareous soils and steepness of the slopes have limited the types of trees and shrubs used. Care has been taken to limit areas that need watering in summer to the ovals and the building environs, and wherever possible automatic systems have been installed to minimise consumption.

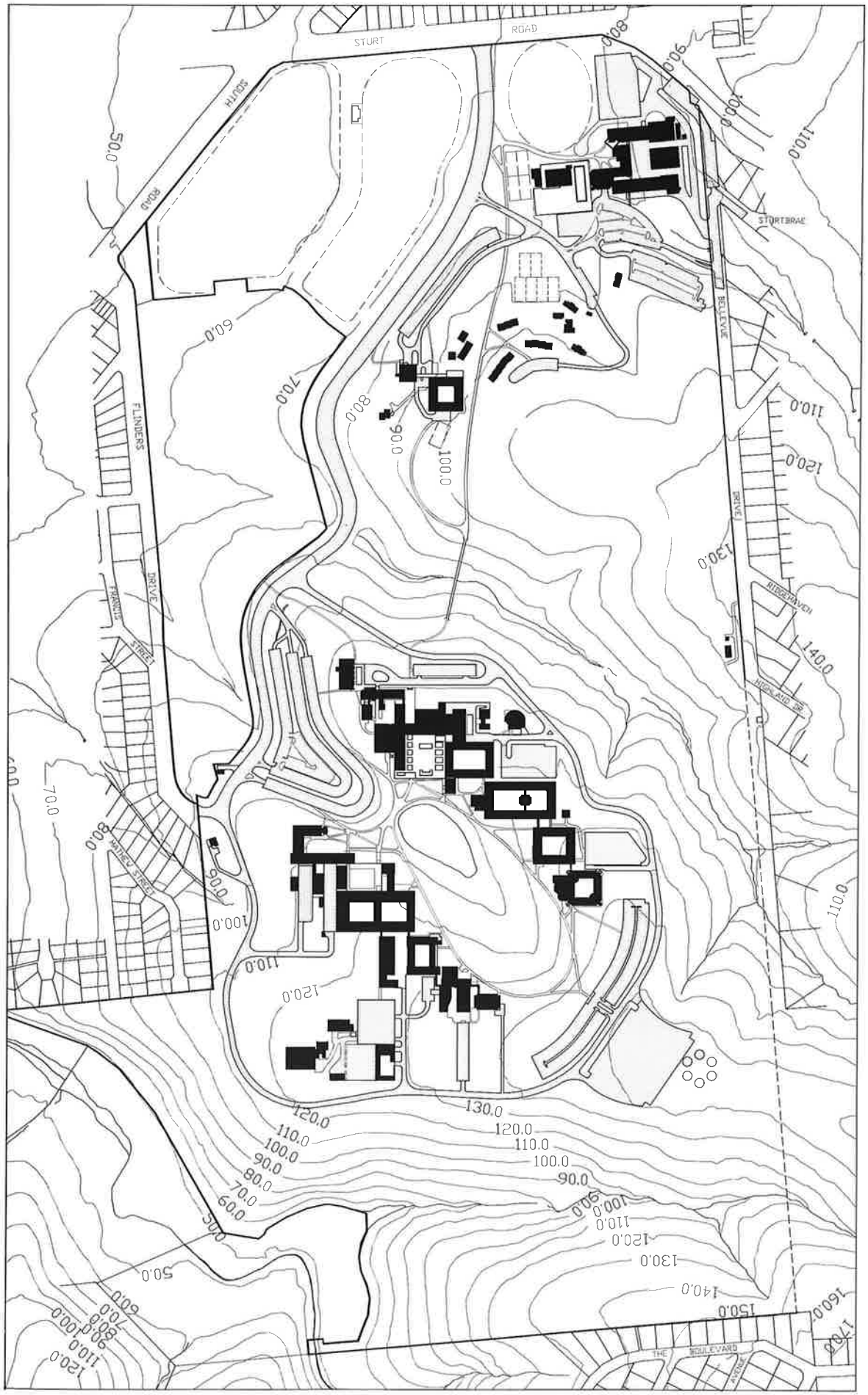


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Diagram 6

4. STATISTICS AND PROJECTIONS

4.1 Bases for Planning Projections

Statistics and projections for campus planning need to be related as directly as possible to plans and projections for academic development in the future.

At Flinders, the statistical data on the present student and staff numbers and on the facilities that are available provide appropriate starting points from which to project forward.

Detailed proposals for academic development for the 1993-95 period are set out in the 1992 Education Profile submission to the Department of Employment, Education and Training (DEET)[3]. Directions for the future development of the University are outlined in the Strategic Plan[4] which was approved by the Council in August 1992.

These bases have been used to develop projections to the year 2010 for the purposes of the Review.

4.2 Students and Staff

Details of enrolments by type of attendance in 1992 indicate that total enrolments are 10673[5]. Of these 6248 are enrolled full-time, 3743 part-time and 682 are enrolled as external students. These enrolments equate to 8417 EFTSU.

Based on the projections of EFTSU to 1995 developed for the 1992 Education Profile submission and with reference to the target of 10000 EFTSU in the Strategic Plan, projections of EFTSU to 2010 for each of the four Faculties have been developed by the Planning Services Unit in consultation with the Academic Registrar. These were approved by the Planning Committee in August 1992.

Two scenarios have been developed. The assumptions behind these are contained in Appendix B.

Scenario 1 assumes annual increases in total EFTSU of 2.5 per cent from 1995 to 2010, projecting a total of 13176 EFTSU by the year 2010 (see Table 1).

Table 1: EFTSU Projections to 2010 by Faculty, Scenario 1

Faculty	1992	1995	2000	2005	2010
Education Humanities Law and Theology	2282	2410	2726	3085	3490
Health Sciences	1911	2118	2373	2620	2893
Science and Engineering	1526	1783	2239	2764	3379
Social Sciences	2698	2767	2942	3170	3415
Total	8417	9077	10281	11638	13176

Source: W Marchment, Planning Services Unit, July 1992.

Scenario 1 also assumes different growth trends within the Faculties, which include an increase in enrolments in Law until 1995, a decline in Health Sciences assuming a reduction in demand for medical graduates and a steady state in nursing, growth in engineering and information technology, and growth in business/accounting/economics areas as a result of retraining needs and demands from mature age students[6].

Scenario 2 assumes that intakes will remain fixed at the 1995 levels to 2010, projecting 9541 EFTSU by 2010 (see Table 2).

Table 2: EFTSU Projections to 2010 by Faculty, Scenario 2

Faculty	1992	1995	2000	2005	2010
Education Humanities Law and Theology	2282	2416	2503	2513	2514
Health Sciences	1911	2119	2247	2272	2277
Science and Engineering	1526	1795	1951	1970	1972
Social Sciences	2698	2745	2773	2778	2779
Total	8417	9074	9474	9532	9541

Source: W Marchment, Planning Services Unit, July 1992

The projections outlined above have been adopted by the Review to assist in preparing a physical planning framework for future land use and development of the campus. Focus has been on the upper level of 13000 EFTSU as it is considered that a framework for development which can cover this projection will adequately cover the physical requirements for growth which does not reach this level of enrolments.

Academic staff totalled 552 in March 1992. Based on this total the present student : staff ratio is 15 : 1. General staff, including administrative and support staff, totalled 1277 in September 1992. Also there are significant numbers of research staff which have been identified by the Review for space planning purposes.

As no detailed staff projections are available for use by the Review, the assumption has been made that the total staff of the University will grow in proportion to the projected EFTSU. This assumption is expected to prove reasonably accurate, but it should be checked periodically in the future.

4.3 Space Projections

An analysis of space requirements was prepared in the University Architect's Office in August 1992. It used theoretical norms for university space developed by the University Grants Committee in the United Kingdom (UGC)[7] as a basis on which to assess global amounts of space considered desirable to accommodate the present academic activities of the University, and compared these assessments to the space actually in use.

There is a considerable shortfall between the total space available and the total considered to be desirable. It is expected to take many years to overcome this shortfall and to bring the actual space provisions and theoretical requirements into balance. Nevertheless, the global amounts of space thought to be desirable at this point, are considered to be a more appropriate basis from which to project future space needs than the space currently available.

The UGC norms quantify in global terms the useable floor area per EFTSU typically required by various disciplines for their teaching, research, office and ancillary functions and the norms are weighted to cover variations in space demands at the discipline level. Global figures are also provided in the norms for common teaching areas, library and administrative space.

These global figures are considered adequate for the purposes of this Review, but it is noted that more detailed assessments of space needs will be necessary in the future for specific purposes.

A series of gross space projections has been developed for academic and common space based on the EFTSU projections and nett useable space norms outlined above. These space projections are presented in Table 3.

Table 3: Projections in Square Metres of Gross Floor Area to 2010

	1992	1995	2000	2010
Scenario 1	98100	115100	132300	173100
Scenario 2	98100	115100	121200	122100

Source: G Harrison and P Rallis, University Architects Office, August 1992

It will be noted that in both Scenarios the Table shows a difference of 17000 square metres between the 1992 and 1995 figures. This is because the 1992 figures represent the actual space figures, which are much lower than those suggested by the norms, whereas the 1995 figures are the full amounts of space indicated by the norms. Although additional space of this order will not actually be provided by 1995 because the necessary capital will not be available, the figures are considered to be an appropriate base for projections for later years for the purposes of the Review.

To match the growth projected in Scenario 1 by 2010 an additional 75000 square metres is projected, an overall increase of 76 per cent. However, by 2010 space projections based on Scenario 2 show an additional 24000 square metres, an overall increase of 24 per cent.

As indicated, these figures are used for campus planning purposes to provide an umbrella for development that is considered desirable when the University reaches about 10000 and 13000 EFTSUs, irrespective of when these figures are reached.

4.4 Parking Projections

Parking spaces are currently provided in 16 car parks and some kerbside bays. There is a total of 3507 places, which is 41.7 per cent of the current EFTSU numbers. Based on the projections for EFTSU growth, projections have been developed for car parking assuming demand levels of 41 per cent of EFTSUs in 1995 and 40 per cent in 2000 and 2010. The reasons for the slight reductions in these percentages are discussed in section 7.1 below.

Table 4 indicates the projected spaces required. The additional parking required to meet the projected growth in Scenario 2 is minimal with an increase of just 308 spaces by 2010, but the Scenario 1 projections show 1763 additional spaces required by 2010.

Table 4: Car Parking Projections to 2010

	1992	1995	2000	2010
Scenario 1	3507	3720	4110	5270
Scenario 2	3507	3720	3790	3810

Source: P Smith, University Architects Office, August 1992

4.5 2020 Vision

The Review has also been informed by data and information from the recently published Planning Strategy for Metropolitan Adelaide, 2020 Vision[8].

The Strategy projects slow population growth for Adelaide as a whole, but it is careful to point out that the population growth that actually occurs will depend on the retention and attraction of investment and jobs.

As suggested in the attached report (Appendix C), if the Strategy is implemented, the consequences for Flinders could be significant in the longer run. Growth in demand for Flinders' services from the southern region of Adelaide would be slowed and demand would tend to be transferred to the northern region. However, the shift would not begin for 15 years or more. There may be gradual change to the composition of the southern population also; the region could become increasingly attractive to middle income earners who may continue to be relatively more interested in higher education than low income earners notwithstanding equity programmes.

A further implication of the Strategy involves changes to the management of public transport. A slowing of growth in the south may make it more difficult to negotiate improvements to public transport to the campus.

It is noted that the implications of the planning strategy have been kept in mind when developing academic growth plans for the University.

5 FUTURE LAND USE

5.1 Zoning

It is proposed that land use planning should continue to be based on a simple system of functional zones or precincts in view of the extent of the campus, its natural division by the topography, and the need to locate facilities in compact groups for the convenience of the users and to make good use of the limited building land.

The word 'precinct' is used extensively in this Review as an apt descriptor in view of the coincidence of the functional and geographic parts of the campus.

The academic building precincts will need their boundaries formalised, particularly at Sturt. The 'Sturt' oval is the best the University has. It is an entity. Suggestions that a corner of it be used for building or car parking are inappropriate.

Apart from the constraints resulting from existing development and the topography, four main factors suggest that attention should be focussed on the existing zones for future academic buildings. The statistics indicate that the majority of the academic building needed for up to 13000 EFTSU at Flinders already exists. The pace of development into new academic fields appears likely to slow now that the University is a broadly-based institution. The pattern of capital development over the next decade is expected to be incremental rather than episodic, and an 'add-on' system is needed to limit relocation costs, both human and financial.

The residential precinct is mostly undeveloped at this stage. However, the student survey indicates that there is substantial unmet demand for residences on campus and it is proposed that the land in this area be developed as a residential precinct as soon as possible. Residential development is expected to be largely self-financing.

Some of the open space areas are likely to come under pressure for building development, particularly when the adjacent building areas become fully developed, and well-considered policies need to be adopted in relation to them.

Any intrusions on to the sports fields should be strictly limited as they are major assets of the University community. However, the involvement of students in team sports on campus has not grown as was expected when the initial plans were made. A suggestion that an area at the southern end of the lower terrace of the sports fields be identified as a possible site for a bus interchange (pending the development of the proposed Tonsley bus-rail interchange) has been taken up in the Review. (See section 7.2).

If this were to materialise, the sports fields could be reduced by up to 1.5 hectares. With this exception, it is considered important that the sports

fields be retained to meet the needs of the increased numbers of campus residents.

The steep valley areas and Hills Face Zone reserve are mostly well covered with forest plantings and as they are difficult areas for building they are likely to remain substantially unchanged for decades. The park in the centre of the main academic precinct is also steep and difficult to develop but suggestions for building in this area have arisen nevertheless. The park is an important passive recreation area at the heart of this precinct. Enhanced by the lake, it also provides a very attractive outlook from the surrounding buildings. The Red Gum stand south-east of the Sturt buildings is also an important asset.

This Review recommends that the sports fields, steep valley areas, the central park and the Red Gum stand should be permanent green reserves. Further it is proposed that these sites be acknowledged as such by the campus community and accorded protection by the University similar to that provided by law in respect of the Hills Face Zone areas.

5.2 Land Use Plan

Consideration of the matters mentioned above has led to the revision of the land use plan for the campus as illustrated in Diagram 7.

Areas of the campus have been assigned for various uses in the following precincts:

Building Precincts

Academic, including associated common facilities and parking		
- Main academic area	22.0	hectares
- Sturt	6.5	hectares
Residential	15.5	hectares
Childcare	1.0	hectares
Service buildings, yards and stores	2.5	hectares

Open Space Precincts

Sports fields and courts	16.5	hectares
Forest/native flora areas	46.0	hectares
Hills Face Zone areas	25.0	hectares
Central park and lake	4.5	hectares

5.3 Density of Development and Environmental Quality

Within the academic building precincts, a balance will need to be maintained between building density and environmental quality. The present standard of environmental quality in these areas is highly appreciated and is one of Flinders' major attractions to students and staff.

It is basically a result of the development density that has been selected - the plot ratio of 0.75 - and the retention of green space in the courtyards and immediate building surrounds. Some other universities built in the last 30 years have been planned at higher densities, for example, Macquarie at a plot ratio of 1.5 in the academic area. This is thought to be too high for Flinders. A slight increase in density is practicable while maintaining enjoyable environmental quality. For the future, density in a range between plot ratios of 0.75 and 0.9 is proposed for academic buildings.

The need to provide further car parking for commuters is likely to be a major threat to the environmental character of the campus, unless there is a significant change to the preference of most commuters for private car transport. To avoid this threat it is proposed that demand for more car parks should be met by multiplying the capacity of existing car parks in the academic building precincts by constructing decks in them. Parts of some of the existing car parks may need to be used for building, but the possibility of including parking spaces under some new academic buildings may merit consideration also, particularly on less steep sites. Some detailed suggestions are advanced later in the Review.

The main academic precinct contains enough vacant land for the additional building requirements that have been projected at the 13000 EFTSU level, with decked parking, but the precinct will then be full if Education is included. Some storage and support facilities, including scientific gardens may need to be located elsewhere.

At Sturt, it will be necessary to build on the grassed area south of the gymnasium and to relocate parts of some existing car parks and build on them if Education is consolidated there.

5.4 Other Sites

As part of the Review consultation process, comment has been sought on the possible need for other sites for Flinders activities in the future.

Support has been identified for a presence in the city area for various reasons. There is also support for locating appropriate research units at Adelaide Science Park, and interest in Biological Sciences in the future acquisition of some rural land on which to grow plants and keep animals. The possible need for closer association with TAFE activities at a number of locations, including Regency Park, Panorama, Kingston and Noarlunga Regional Centre, has been commented on. The possibility of the dispersal of staff to other locations has also been mentioned.

It should be noted that the capacity of the Flinders site for economical development has finite limits. If the EFTSU projections to 1995 are realised in full or exceeded, long-term options for future development at one or more other sites should be reviewed with some care.

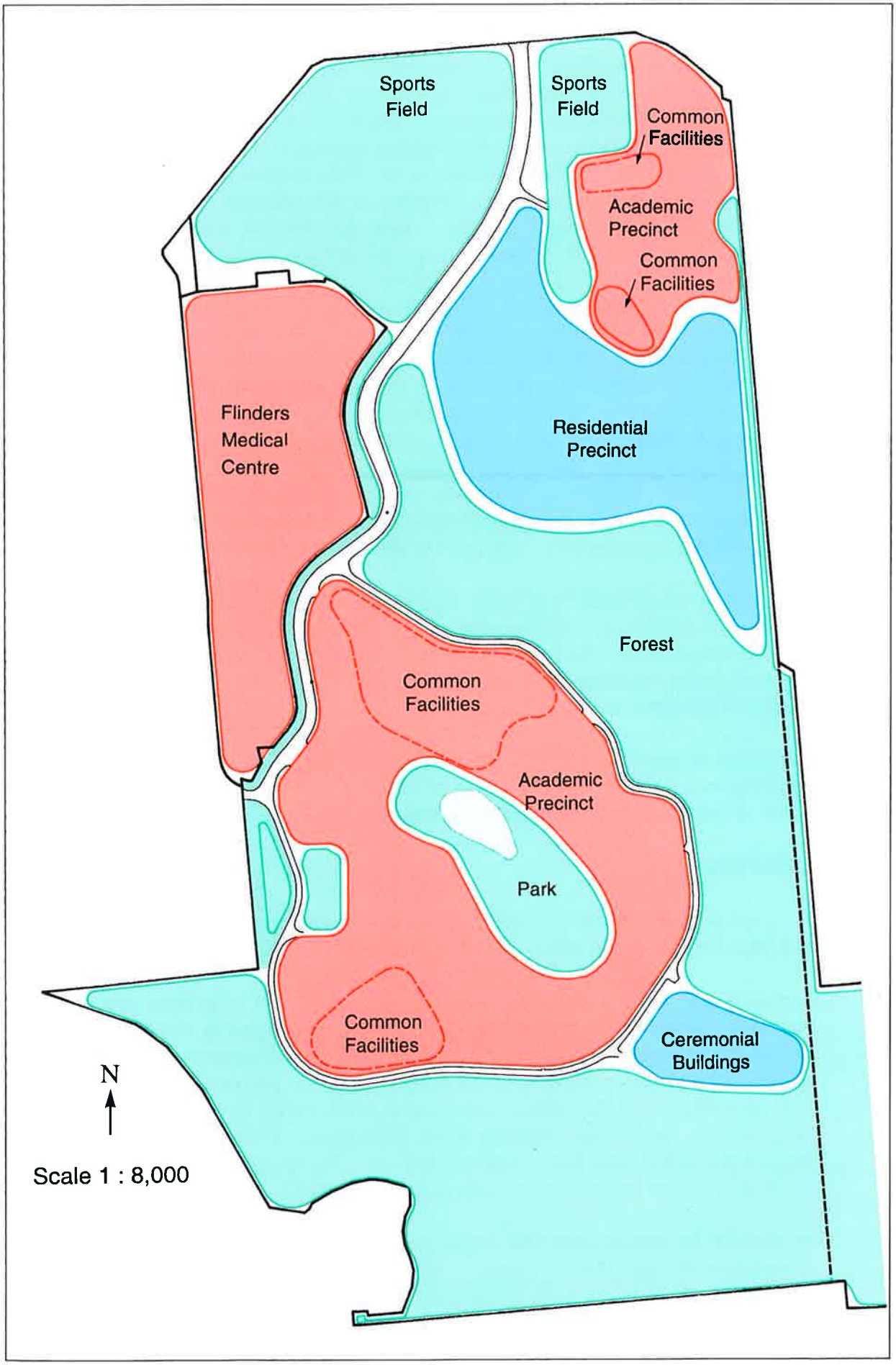


Diagram 7: Proposed Land Use

6 FUTURE BUILDINGS

6.1 Academic Buildings

As indicated above, building development at the present density or a little greater is likely to retain an appropriate environmental character in the academic areas.

This density is achievable using a modified matrix form of building similar to that of the existing buildings. The theoretical background to the original planning decisions at Flinders to develop a series of contiguous academic buildings in the form of courts on the ridges around the central park and lake area can be traced to garden city planning work at the turn of this century and the research on land use and built form conducted at Cambridge in the 1960s and 1970s under the guidance of Sir Leslie Martin. Martin and his colleagues[9] indicated that instead of using a taller pavilion form of building, development of the same floor area around the perimeter of courts is advantageous, and that building courts changes the relationships between the land, the building content and the traffic which it generates.

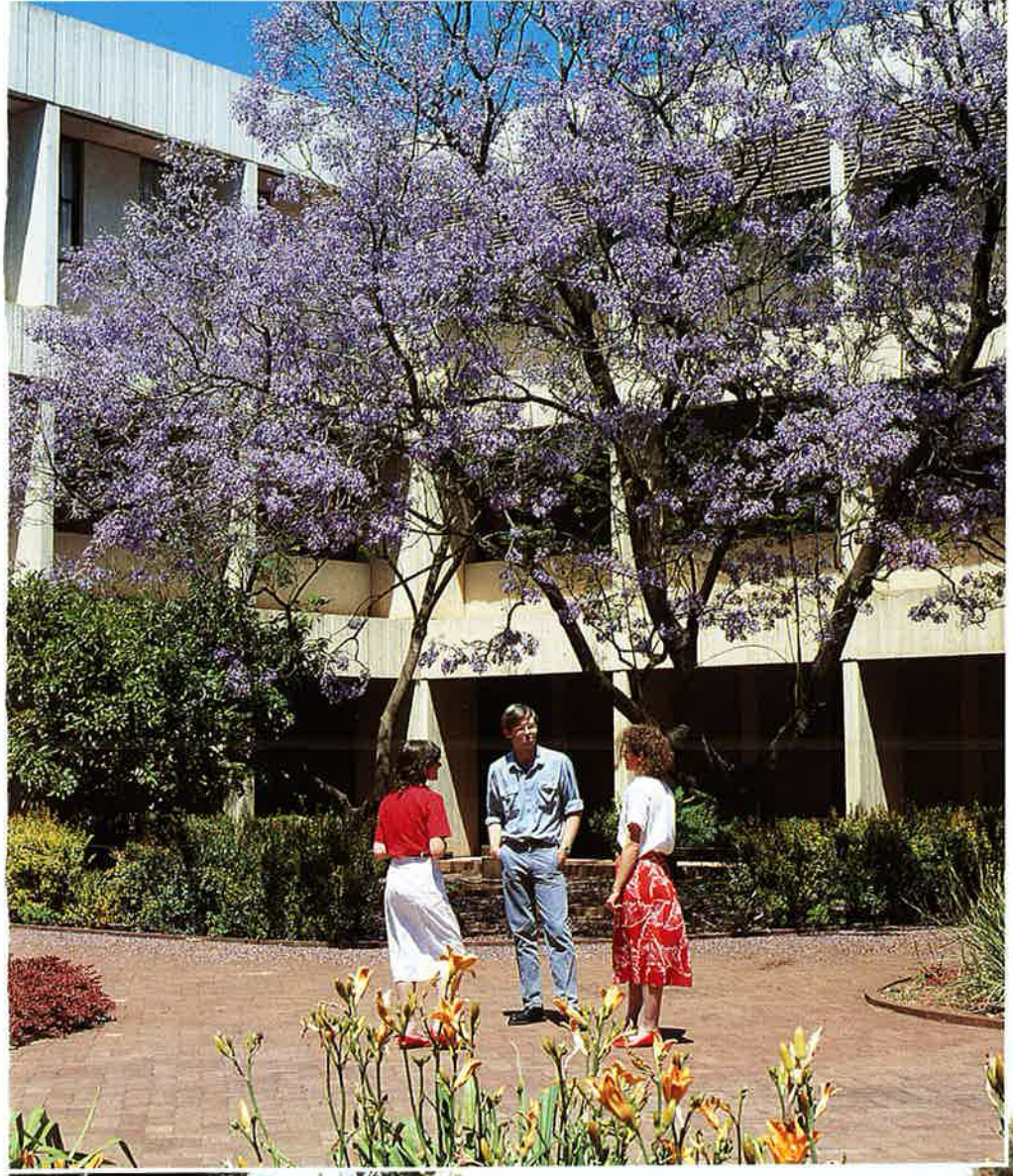
The courtyard building form has been effective at Flinders, where it has provided a measure of enclosure and protection from the elements to the numerous users of the pedestrian precinct. The continued use of a matrix layout, modified as necessary to suit the terrain, should allow economical development which utilises the available building land efficiently, has minimal visual impact, and offers better security, privacy, and climatic control than pavilions or towers.

Buildings of 3-4 storeys are proposed with relatively narrow wings planned around a series of landscaped courtyards, located close to each other and linked by well-defined covered pedestrian routes. The narrow wings allow almost all rooms to have natural light, and the close-coupling of the buildings provides flexibility for the use of rooms in adjoining buildings in changing groupings for changing functions over time. Consequently, buildings similar to the existing ones in general form are proposed for Humanities, Social Sciences, Nursing and Education. Other forms, such as single wings, are suggested where they are necessary to meet existing site constraints or to preserve existing emergency access.

Drama and Visual Arts and Archaeology are special cases where studios and workshops are needed in locations easily accessible to groups of visitors, out of hours and at weekends as well as at normal operating times. When it becomes possible they should be relocated to sites adjacent to that reserved for a ceremonial group of buildings at the top of the main academic ridge, where there will be ample parking nearby.

For Science and Engineering, somewhat thicker buildings and some lower wings, incorporating pedestrian circulation, are likely to meet the functional requirements more satisfactorily. Use of the matrix form will allow the inclusion of some additional space in this area to cover the

View from the East, 1985



Social Sciences North courtyard

Courtyard at Sturt

possibility that more accommodation may be needed for special purposes in the future.

Provision of space for research building development should funding become available has been incorporated into the campus plan.

At Sturt, wings may be added first to the south-west of the present group on part of Car Park 13. In the process a turning area for buses and an appropriate new entrance to the Sturt complex may be provided as a bonus. A possible arrangement which could help to reduce the actual and perceived distance between the nain academic precinct and the Sturt precinct is illustrated in Diagram 8. Later, further wings may be added to the north of the present group.

Flinders Medical Centre is an integral part of the campus as a whole as it accommodates the School of Medicine.

The School of Medicine is expected to need considerably more space than it has at present. A number of locations for this have received consideration.

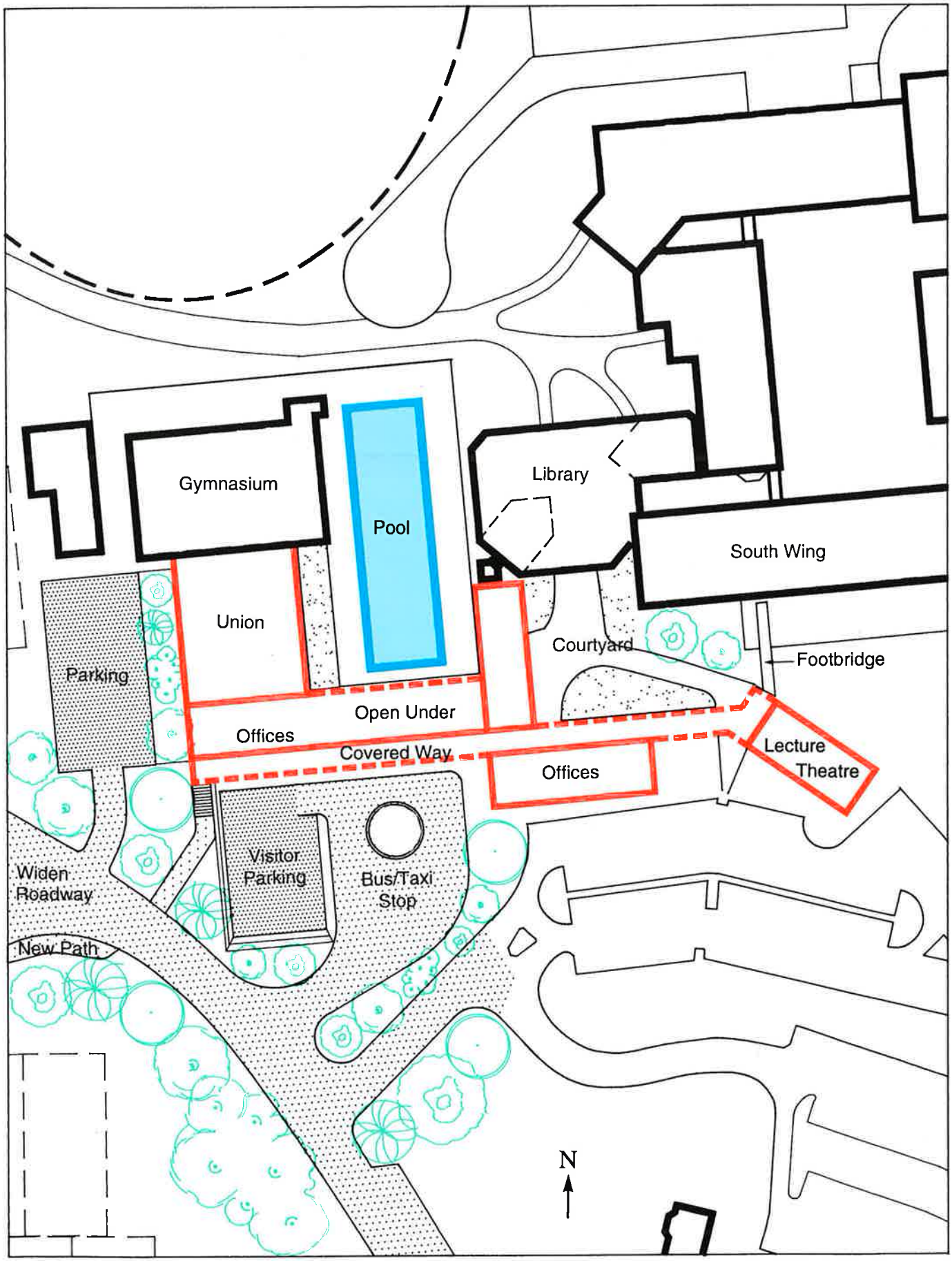
Firstly, the Medical Centre's development plan[10] indicates where academic accommodation may be added north and south of the laboratory wings of the Centre and also shows a location for additional teaching space. (See Diagram 9). Secondly, the relocation of non-scientific functions from the highly serviced laboratory wings in the Centre has also been suggested and is under consideration. Thirdly, the possibility of retaining additional options for development of the southern part of the Centre's site has been canvassed. Fourthly, there is the possibility of obtaining space in the Mark Oliphant Building at Science Park for appropriate medical research units.

6.2 Common Facilities

These facilities include libraries, common teaching facilities, student amenities, sports halls and administrative accommodation.

The main library is now overcrowded. Four basic reasons are apparent - growth in student numbers, growth in the existing collections the assembly of additional collections, particularly the substantial Law collection and the migration of research students from the social sciences and . Many of the research students are expected to return to their discipline areas in the academic buildings when these expand and they should be encouraged to do so for collegial reasons, but the collections will continue to grow in the main library. Consequently, it will need to be able to expand to approximately three times its present size to meet the needs of a 13000 EFTSU campus.

Consideration has been given to how to expand the library in an efficient staged manner, with the result that a series of contiguous 4-storey extensions north and then east is proposed. This is expected to give



Scale 1 : 1,000

Diagram 8: Sturt Possible Development to South West

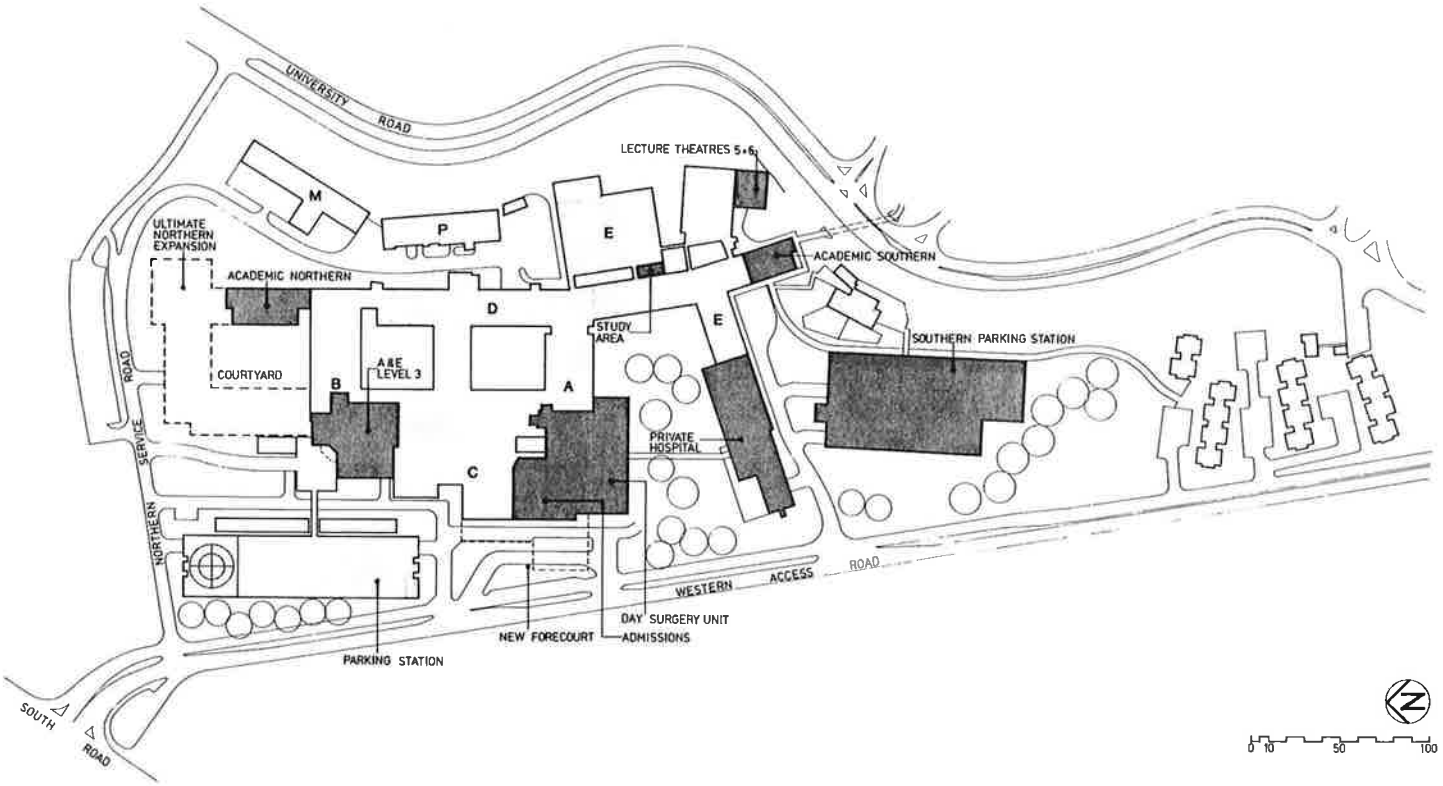


Diagram 9: Flinders Medical Centre Proposed Development Plan

Source: Flinders Medical Centre Development Plan Review May 1992

maximum flexibility in the building at every stage. The last stage is expected to follow the transfer of Drama to a new location. The same type of building as the present library is proposed - somewhat similar to a 4-storey department store. Emphasis should be given to natural lighting for reading areas on the northern and southern sides.

The branch libraries at Sturt and the Medical Centre are expected to need relatively minor expansion to the 13000 EFTSU stage. The Sturt Library can be extended a little northwards and can expand storage in part of the undercroft and offices in the teaching wing. The Medical Library can expand into adjacent space by the decanting of non-library functions to other accommodation.

The Library Store in the common facilities service and storage zone on the South Ridge can be doubled in capacity.

Lecture theatres have been built singly or in small groups associated with each new building in the past, to keep pace with growth in demand. The Planning Committee has suggested developing teaching nodes to accommodate larger groups of lecture theatres and tutorial rooms in the future. On the main campus this can be done using existing groups of teaching facilities on the North Ridge and around Anchor Court as bases to achieve groups of six or seven theatres and six to ten tutorial rooms. A notional plan for a group centred around Humanities is shown in Diagram 10.

At present, provision is made for the several student services at various locations on campus. These include medical, counselling, careers, language and learning, Aboriginal support, accommodation, loans, admissions and graduation services. Expansion will be needed as student numbers grow, and this is impossible for most services in their current locations. In view of the Planning Committee's support of nodes, a new Student Centre that is a "one-stop shop" for all student services is proposed. It can be located adjacent to the main Union, Sports Centre, Registry and bus terminus and close to the Library, the Humanities teaching node, and major car parking facilities. A notional plan has been developed for the Student Centre and additional administrative accommodation forming a Western Mall. Some additional shops may be incorporated in the accommodation at Mall level if required (with the Union as an anchor at one end and the Sports Centre at the other). This is illustrated in Diagram 11.

The two existing gymnasia have been mentioned. The Sports Centre gymnasium in the main academic precinct is used for recreation and also for examinations; there are squash courts and an equipment gym on the lower ground floor. The Sturt gymnasium is used mainly for teaching. Further indoor facilities such as weights and aerobics rooms and more squash courts and equipment areas may be added to the existing facilities. In the shorter run, it is suggested that additional facilities be added at Sturt and that this become the focus for indoor sport and recreation as increased calls are made on the Sports Centre for assemblies. In the longer run,

when the group of ceremonial buildings planned at the top of the horse-shoe ridge is developed, it is assumed that the Sports Centre will no longer be needed for large assemblies. Provision is included for extensions to both complexes.

The pool at Sturt is currently unenclosed so it can be used only in the summer months. A proposal to roof it to allow year-round use appears to have merit.

Provision for Union expansion is made in four areas. First, a small branch cafeteria and common room is proposed on the South Ridge of the main academic area, located near the centre of the ridge with good service access. Second, provision is made for substantial expansion of the main Union south of the Registry Annexe. Third, provision is included for a new Union building south of the Sturt gymnasium. Fourth, cafeteria and lounge facilities may be included near the top of the main academic precinct and in the ceremonial building group.

More shops may be included where appropriate when Union expansion plans are developed. The possibility of incorporating the bookshop into the main library when it is expanded is under consideration; this would give the bookshop more space with a shopfront facing the Plaza, and allow the expansion of other shops in the Mall.

6.3 Residential Buildings

Data from the Accommodation Office and from the Student Survey indicates that there is unmet demand for both collegiate and non-collegiate accommodation on campus. The latter is known to be particularly strong and it appears that the stage has been reached when many students and some staff are prepared to rent accommodation on the campus at market rates. A preference for on-campus rental accommodation at market rates was indicated by 25 per cent of respondents to the student survey.

Halls and colleges tend to have relatively monolithic buildings and to need somewhat less land per resident than domestic-scale non-collegiate housing. There is room for a second hall for 200 residents or more on the triangle of land between Hall Terrace and the main north-south pedestrian route to the east. There is also room to add substantially to University Hall on its southern side.

Future hall accommodation may be provided either in small groups of single study-bedrooms with shared kitchenettes and bathroom facilities, or individual motel-style rooms. In either case residents would have access to dining rooms, common rooms, recreation rooms and computing and library facilities. In all, 500-600 hall residents can be provided for in the 5 hectares of land west of the main path from Sturt to the Registry.

East of the path, there is approximately 10 hectares of land suitable for building, of which 1.5 hectares has been used, or is currently committed,

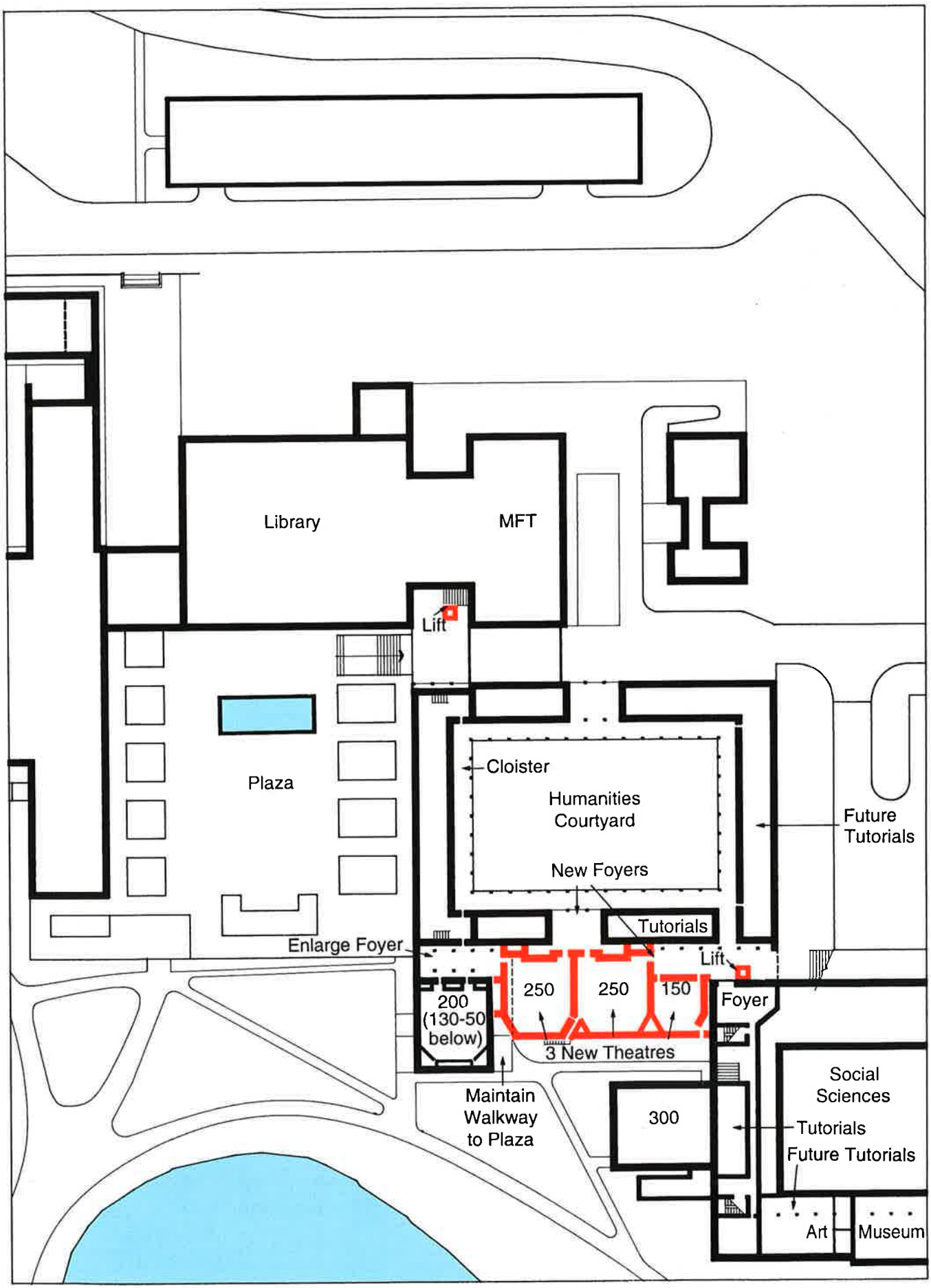


Diagram 10: Teaching Nodes North Ridge

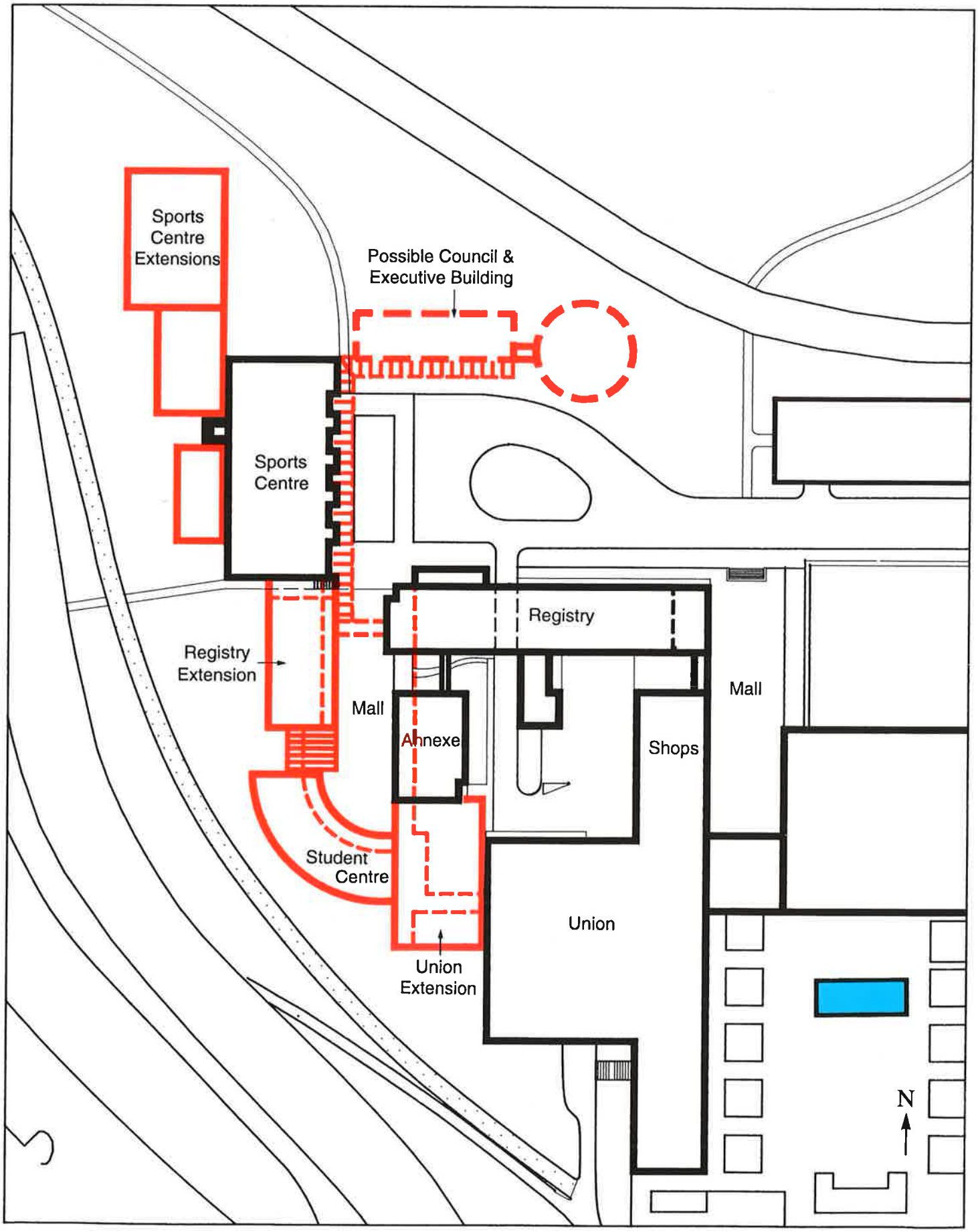


Diagram 11: Student Services Centre

for two and three-bedroom townhouses for a university community of 120 people. The remaining land will accommodate townhouses and flats for 700-800 more people, a University Village Centre with shops, and cafe community hall, and a village green with playground and barbecue areas. Most development is proposed in two storey townhouses. Three storey flats are proposed on selected sites close to the village centre. Such development need not rise more than a few metres above the road level opposite it in Bellevue Drive, and consequently need not block views from neighbouring houses on higher ground on the eastern side of the street.

The buildings themselves are planned to be of simple domestic construction, built in small groups staged over several years to ensure that supply does not exceed demand and that the total development may be self-financing. The base of 350 places that will be achieved when the current townhouse construction is complete is likely to support such development.

Assuming care is taken to conserve land in future residential planning, approximately 1400 people can be accommodated in an attractive residential environment by these proposals.

The flats and townhouses may accommodate a variety of tenants, including research workers, academic visitors and other staff as well as undergraduate and graduate students. With child care facilities available nearby, the accommodation may be attractive to small families as well as single persons.

The availability of a significant quantity of on-campus housing will have a number of important effects on campus life, particularly in the evenings and at weekends. Apart from producing a much livelier atmosphere in which both academic and social activities may flourish, there will be a significant reduction in demand for commuter parking and positive effects for security. The visible gap between the main academic campus and Sturt will disappear. The University's opportunities for attracting overseas students and for hosting academic conferences are likely to be enhanced substantially.

6.4 Child Care Facilities

Though supply and demand are reasonably well balanced at present, provision is required for future growth. This may be achieved by consolidating development in this area to a density compatible with that of the campus as a whole, and further by expanding on to part of the tennis court area immediately north-west of the present buildings. The site area of the Centre west of Sturt Drive may thus be increased to 1.0 hectare.

It is well recognised that domestic-scale buildings are appropriate and that outdoor play areas are needed for young children. It is expected that these needs will continue to be met. Careful siting and design of additional facilities is expected to produce an enjoyable and stimulating environment for children at the Centre.

6.5 Changing Standards

The average age of the University's building stock is now over 20 years and this is likely to increase despite the addition of new buildings in the future.

Although constructed in accordance with the building codes and practices applicable at the time they were built, many of the academic buildings fall short of the standards now required for new buildings.

In addition, community expectations have undergone gradual change since the University's buildings were designed and constructed. Better equipped workspaces, carpeted corridors and universal airconditioning are now expected. Further changes in expectations are likely in the future. These may include changes resulting from environmental concerns, such as expectations of better shading, indirect solar energy use, and revisions to waste management arrangements.

A review of building standards is scheduled in 1993. It is hoped in the course of that review to address a number of the questions arising from changing code requirements and community expectations.

Renovations to bring the buildings to conformity with current codes and upgrading them to meet the changing expectations of building users will be ongoing tasks which will create significant drains on University resources which will tend to slow the development of new capital facilities.

Consequently, bold schemes for new development may be more difficult to achieve in the future. For this reason among others, most of the Review proposals are constructed so that they may be implemented in modest stages. If sufficient funds become available it will be possible to develop the planned facilities in larger stages by combining two or more small stages.

7 ACCESS, PARKING AND SECURITY

7.1 Future Travel Choices

Flinders is situated in the southern suburbs of a car-oriented city. As noted in the 2020 Vision Planning Strategy (p 67), metropolitan Adelaide is readily accessible for those with a private car but inconvenient (by bus or train) or expensive (by taxi) to move around using public transport.

Accurate information on how most people commute to Flinders is unavailable, and there is a need for the on-going collection of more comprehensive data.

In the absence of conclusive data two indicators have been used by the Review to assess the transport modes of students and staff at Flinders. Firstly, the fact that the car parks are all full at peak times, and secondly data from the student survey.

Table 5 indicates the current and preferred modes of transport of respondents to the student survey.

Table 5: Comparison of Current Mode of Travel and Preferred Mode of Travel of Students.

Mode of Transport	Current %	Preference %
Car - self drive	51.1	55.5
- lift	8.4	9.2
- pool	1.5	3.1
Public Transport	27.6	19.5
Motor Bike	1.3	2.0
Bicycle	2.8	4.0
Walk	6.4	4.5
Other/Not Answered	0.9	2.4

Source: Flinders University Student Survey 1992

The table shows that the percentages of those sampled who came by car and public transport were 61 per cent and 27.6 per cent respectively; it also shows that 67.6 per cent would prefer to come by car and 19.5 per cent by public transport. From the data available it appears that most students and staff commute to the campus by car and this is likely to continue.

The indicators mentioned, provide little support for assumptions that better public transport and car pools will reduce demand for commuter parking on campus by much in the future. It is considered more likely that the percentage of commuters driving themselves to the campus will continue to increase.

However, there are factors which could have significant impacts on the patterns of commuting to the campus, including:

- the provision of more housing on campus;
- increases in the use of technology allowing people to study and work at home if they choose to;
- rising private transport costs;
- environmental concerns

It is considered that these factors are likely to outweigh the increases in parking demand per EFTSU that might otherwise occur.

Based on the above factors this Review has assumed that the proportion of commuters parking cars on campus in the future will gradually decrease from 41.7 per cent of EFTSUs in 1992 to 40 per cent by the year 2010, as indicated in section 4.3.

7.2 Transport Interchange

Improvements in bus services to Flinders from the southern suburbs which have been made over the last eight years have led to the development of a mini-interchange at the main entrance of Flinders Medical Centre. The University provides a free loop bus from it to the main academic precinct and Sturt. The interchange was not planned for and cannot be expanded in its present location.

Whilst there have been a series of plans to construct a major bus, rail and car interchange about a kilometre from the University at Tonsley Station, it is not known when this may eventuate.

A third possible location for a bus interchange involving University land may be attractive. Relocation of the existing bus interchange at the Medical Centre to its northern boundary, on the southern part of the lower sports field terrace, would allow the interchange to be enlarged.

Access for buses from South Road would be via the Flinders Drive intersection as it is at present. Access for the University loop bus would be direct from University Drive; its trip time would be less and its schedule could be more frequent. The congestion caused by the mixture of buses with taxis and cars at the Medical Centre entrance would be overcome. The interchange would be closer to Science Park.

7.3 Roads

University Drive and Flinders Drive are both four lane divided roads. They have light-controlled intersections with Sturt Road and South Road respectively. Access to the University via these intersections is satisfactory at present, although traffic entering and leaving the campus at the brief

morning and afternoon peak periods is often delayed slightly. The Road Traffic Authority will rearrange these intersections in 1993 to improve their capacity, particularly for traffic to and from locations north and south of the University, in association with the widening of South Road from six to eight lanes. With these improvements, access to the campus and the Medical Centre is expected to suffice for some years.

However, unless present patterns of vehicle use are reduced, better access will be essential well before the 13000 EFTSU stage is reached. Some possibilities to improve vehicle access which should be investigated include:

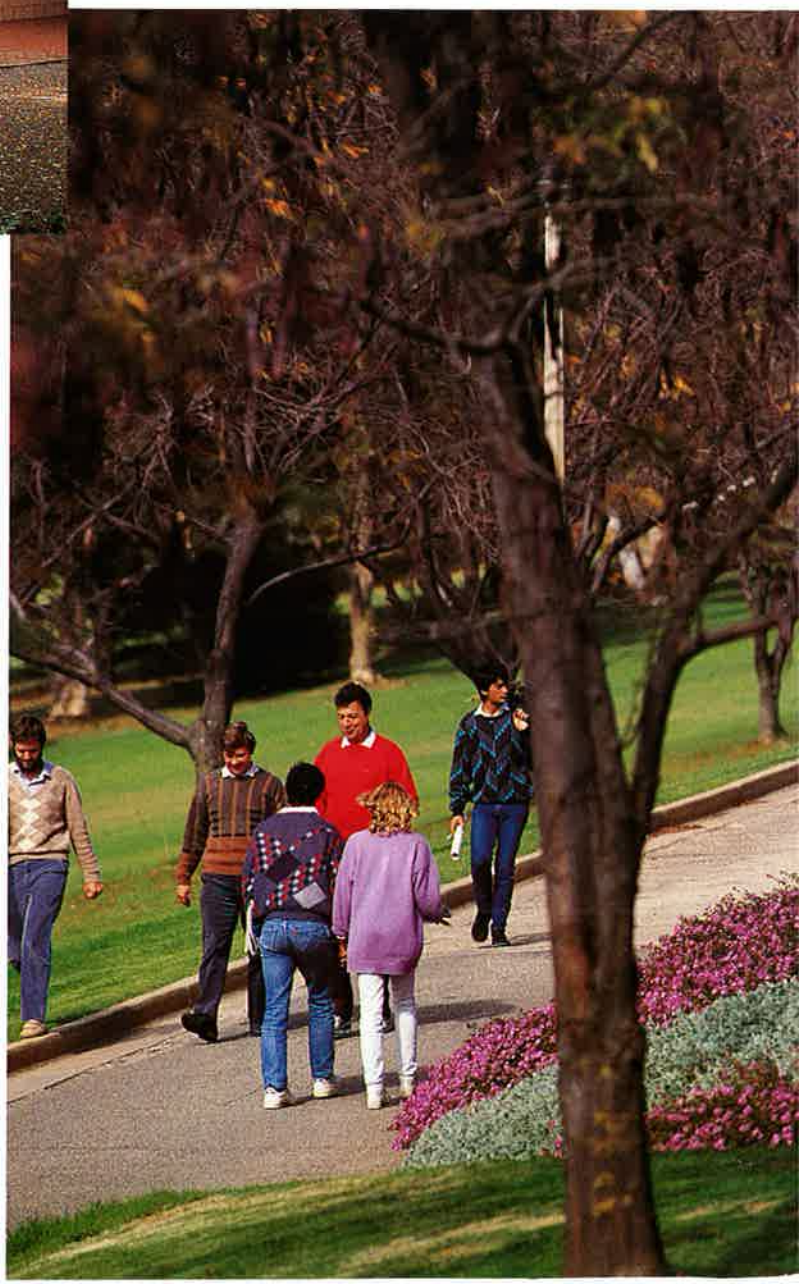
- reducing rises in demand for access to the campus, e.g. by parking constraints or by encouraging more study off-campus;
- limiting peak demands for access and egress by staggering working hours;
- encouraging shifts in mode of travel, e.g. to car pooling;
- providing off-campus parking, with a shuttle bus connection;
- further improvements to road access, particularly through the intersections adjoining the campus;
- eliminating parking on University Drive and Flinders Drive;
- widening parts of the University roads;
- upgrading intersections on-campus.

Appropriate combinations of access improvements will need to be introduced progressively as the University expands. The possibility that security controls at the entrance to the campus may be needed in future should be noted.

The traffic capacity of University Drive near Sturt Road will come under strain as the University grows. The capacity of the distributor roads, Ring Road and Sturt Drive, will also gradually come under strain. Traffic capacities on campus can be improved significantly by upgrading intersections, introducing traffic lights and widening critical sections such as University Drive between Sturt Drive and Sturt Road (to six lanes) and the lower part of Sturt Drive (with slip lanes). This drive will extend to serve the whole of the residential area as well as Sturt.

Beyond the distributors there is a series of spur roads - Registry Road, Physics Road, Hall Terrace, etc. Most of these should remain adequate even when further buildings are added adjacent to them.

Open and enclosed pedestrian routes



Pathway, Central Park

7.4 Bikeways

As noted above, the number of people who commute to the University by bicycle is small. Three obvious factors inhibit cycling to and on the campus:

- the absence of bikeways to the campus or on it
- the steepness of the campus itself and the terrain to the east
- the danger of cycling along or across main roads (particularly South Road) enroute from the flatter suburbs north and west of the campus.

The student survey indicated that 4 per cent of respondents would prefer to cycle to the University. This supports the view that the provision of bikeways on campus might reduce the need for car parking slightly and this possibility merits further consideration.

A proposal to develop a bikeway across the Hills Face Zone land east of the main academic precinct to provide a connection to the adjacent suburb may be an appropriate place to start. It may also be possible to identify routes leading north-east and north-west from the campus that are safer than the roads.

Although discussions have occurred between local Council officers and staff of the Buildings and Property Division, it may take some time yet to reach agreement about reservations along the sides of roads or other bikeway routes, to consider questions of safety and security, and to identify funds for the development of a bikeway system. When such matters are resolved it should be possible to accommodate cycle routes in the campus plan.

7.5 Pedestrian Routes

Within the campus, pedestrian routes are separated from roads wherever possible to make the paths safer and more pleasant to use, and it is proposed to continue to do this.

The hierarchy of pathways in the main academic precinct is described in section 3.3. As mentioned in section 3.4, there is a direct path from the main academic area to the residential precinct and Sturt via the footbridge, which also leads to the sports fields and Sturt Road. To improve access between Sturt and the main campus this path requires upgrading and it should be made an even more direct approach to the entrance to the Sturt academic precinct by means such as those outlined in Diagram 8.

There is also a direct path from the main academic precinct via a tunnel under University Drive to Flinders Medical Centre and thence to Science Park.

It is desirable that improvements are made to the system of pedestrian routes. These include better lighting, and light-controlled pedestrian crossings or overpasses at the Ring Road, Sturt Drive and University Drive.

In addition to the major pedestrian routes referred to above, there are a number of areas in which the provision or upgrading of footways is desirable. For example, the covered walkway and cloister system in the Science and Engineering area is incomplete between Physical Sciences and Earth Sciences, and it is impossible to move from the Information Science Building to the Mathematics wing under cover except by walking through research areas.

Questions relating to safety and security on pedestrian routes will require attention. It is considered that improvements to the system of pedestrian routes should be accorded high priority to reduce the need to provide for road and parking capacity for vehicular traffic internal to the campus.

7.6 Security

Concern about personal security on campus has risen considerably in recent years, apparently in line with concern in Adelaide generally. Two recent reports made to the University are pertinent. They are the Alexander Stenhouse Risk Management Report[11] and the Campus Security Report[12]. Although, fortunately, neither refers to specific cases requiring immediate action by the University, both provide warning that steps should be taken as soon as practicable to reduce personal security risks on the campus.

One of the main risks identified is that involved in walking from buildings to remote carparks at night. Car Parks 2 and 3 are remote carparks at this stage because they have been developed ahead of their time.

In an attempt to address the concern about remote carparks now, the loop bus has been running on an extended route to them in the evenings this year. Another response has been the suggestion that people who will be leaving the academic buildings after dark move their cars closer to the buildings at the end of the day, when space is usually available. However, these steps do not provide a complete answer.

The isolation of parts of the campus after dark will reduce as the volume of after-hours activity and the numbers of people using the campus in the evenings increase.

Improvements in campus security should not be delayed until further development of the campus occurs. It is recommended that security improvements be undertaken as soon as possible.

In the longer run, it is expected that further development of the campus, and particularly development of the student village concept, will remove much of the concern that relates to isolation. It may also change, and perhaps reduce, the campus population's expectations in relation to security.

The development of the teaching nodes referred to in section 6.2 will have further positive implications for security. The node proposed to be centred around Humanities will be close to the Library, Union, bus stops and Car Parks 1 and 5, and together these facilities will be a centre of campus activity over long hours that is expected to be inherently relatively secure. When teaching nodes are developed it may be possible to reduce the after-hours use of other lecture rooms.

7.7 Service Access

For service vehicles and emergency vehicles, such as fire engines and ambulances, occasional access needs to be provided to areas within the pedestrian precincts, including the Central Park and Plaza. Access is also needed to the forest areas and sports fields. In addition there will be needs for access for construction vehicles to infill building sites and renovation works.

In general, provisions suitable for fire engines will meet other requirements also.

In the main academic precinct, the 3 metre wide ring path around the central park is well located and has satisfactory gradients to continue to serve occasional service access needs as well as the needs of pedestrians. However, the approach to it from the top of the ridge is uncomfortably steep.Three improvements to service and emergency access in this precinct are proposed:

- widening the ring path to 3.5 metres to meet the recently increased requirements of the fire authority (4.5 metres vertical clearance is now required also) and providing laybys at intervals to allow service vehicles to pass;

- relocating the approach to less steep ground immediately east of Engineering; and

- adding an alternative route at the lower end of the ring, west of the Union and Sports Centre.

The situation at Sturt regarding emergency access appears to be reasonable but the service access to the cafeteria is unsatisfactory; the garbage removal arrangements need review.

Care should be taken in new development to maintain existing access for service and emergency vehicles in the academic precincts and to provide additional access as necessary.

Access arrangements at University Hall are generally satisfactory. In the lower density residential area, the roads are expected to meet all requirements for access - personal transport and service and emergency access - as normally occurs in suburban development. Controlled access from Bellevue Drive to the extension of Sturt Drive is proposed, to provide alternative emergency access in case the approach from University Drive is blocked.

In the forest areas, the existing tracks may need local upgrading to provide effective emergency access; the track or path that passes the northern end of the footbridge will need connecting to the road system in the residential area at a point south of the proposed Village Green.

Service access on the sports fields is normally by large-wheeled tractor. It may be necessary to provide controlled access drives for other types of service vehicles in the future.

7.8 Parking

Further car parking in the main academic area and at Sturt can readily be provided in decked structures as demand increases.

It is assumed that the user-pays principle will have to continue to apply to the provision of parking. The cost of decked parking will be significantly higher than that of the surface car parks that have been the norm in the past, but the advantage of having additional parking close to the buildings without reducing the green areas around them will also be very significant.

Appropriate arrangements to meet increasing parking costs will need to be devised as they arise. It is expected that these will address the changing needs of students and staff and may vary over time in response to variations in travel patterns, community attitudes, environmental factors and other influences.

In the main academic area decked parking structures can be built incrementally in Car Park 1 as a series of terraces laid back against the embankments as previously noted to provide over 1000 additional places. Additional places can be provided over the north-western part of Car Park 1 if required. Car Parks 5 and 9 are possible locations for decks also. In Car Park 5, two decks can be built below the second cloister level in Social Sciences North. In Car Park 9, a deck could be built without rising above the natural ground level that exists east of Physics Road. Given appropriate design, it appears that a further 400 additional parking places can be provided in these two locations with little impact on the visual environment, including the views across the campus from the suburban houses beyond it. The total number of additional places that can be provided by these means is over 1400.

At Sturt, a further surface parking terrace may be added to Car Park 16, and up to two decks may be added progressively above sections of this carpark if required, laid back in terraces against the banks, as in Car Park 1. When further building is necessary on the northern side of Sturt, parking associated with it can be structured over the eastern part of Car Park 14. In this location it will be accessible from higher ground and act as a buffer between the buildings and the Shepherds Hill Road overpass. In all, up to 800 more parks can be provided in such structures.

By the 13000 EFTSU stage, decked car parking may be needed in association with the suggested bus interchange. If so, it should be restricted in height to avoid blocking the outlook from wards in Flinders Medical Centre or rising above trees along the edge of the sports fields.

Structures at Flinders will need to be designed to include appropriate landscaping. There is a good example at the University of California, Los Angeles, of a car parking structure that has been developed to blend into sloping terrain and is softened visually by appropriate planting.

The need to provide well-lit and well-secured parking on campus may be more easily arranged in structures than in spread-out surface car parks. For example, a concentration of parking accommodation in Car Park 1 might make this an appropriate location for a campus security office that could remain open 24 hours a day if necessary.

In the main residential area, surface parking for residents cars in relatively small parking lots adjacent to their accommodation is proposed.

8 FUTURE ENGINEERING SERVICES

8.1 Electricity

The distribution system designed for the old Flinders in 1963 had its major components sized to meet the demands of 6000 EFTSUs and 2400 residents, on the basis that when those numbers had been reached it would probably be advisable to duplicate the system to improve the long-term security of the supply. The system at Sturt was designed separately about the same time to serve the needs of the teachers college buildings then envisaged. The University has now almost reached the EFTSU level originally planned for the main academic precinct and there are 300 residents on campus.

The demands for electricity originally projected have generally been exceeded as a result of the use of more and larger heating and cooling equipment and office and research equipment.

Parts of the distribution systems are now strained. At the main academic campus there is limited spare capacity in the high voltage ring main. One transformer station has had to be increased in capacity, two additional transformers have been added recently and another will be essential when the next major building is added on the North Ridge. The later stages of the library expansion covered by the Review will require relocation of the transformer from the Matthew Flinders Theatre basement.

The low voltage reticulation to and within many of the existing buildings also needs major work to meet further increases in demand.

The Sturt electrical reticulation system will need similar upgrading to meet the increased demands that will result from building expansion and the installation of additional equipment in existing buildings.

Fortunately, most main switch rooms and service pits can accommodate additional equipment and cabling as required so no major physical planning problems are anticipated.

8.2 Water

The existing water supply systems on campus are of ample size for present loads, but pressures are limited in the academic buildings situated towards the tops of the ridges. It is inadvisable to pressurise the systems mechanically because the old mains could rupture. Improved supplies to the campus water tanks and to Sturt will be needed to support major development in the future, and a separate high pressure supply in the main academic precinst is advisable for fire fighting.

Within the next two years it is hoped to obtain a new high pressure supply from Bellevue Heights to the new fire main that serves the Information Science and Technology building and the Business/Law building. This is expected to run past the water tanks, so they may be kept filled from it to

avoid the cost of operating the present University pumping station. Subsequently the high pressure fire main should be extended to serve all the academic buildings. Eventually, to meet demand at the 13000 EFTSU stage and provide more secure supplies, a further high pressure line to the tanks from the east may be justified.

Supplies to the main academic buildings gravitate from the water tanks at present and extend to the residences via the footbridge. It is proposed to install a second new main from Bellevue Heights to serve residential development more directly and then to use the supply across the footbridge only as a back-up. This is expected to allow the supply from the tanks to meet the needs of the additional academic buildings proposed.

Improvements to the Sturt system will be needed to meet the demands of additional buildings, particularly for firefighting.

The water mains to the sports fields are adequate and are expected to remain so. However, there may be a case for investigating again the possibility of pumping ground water from the vicinity of the Sturt Creek for use on the ovals. It is noted that such an investigation was made by consultants in 1964 without a satisfactory result being obtained, but the matter may be considered in the review referred to in section 8.6.

There is no reticulation to the steep valley reserves and none is proposed. Any supply of water needed to the Hills Face Zone land may be taken from the high pressure supply to the water tanks.

8.3 Gas

The high pressure gas supply mains from Sturt Road through to the southern academic buildings appear adequate to meet anticipated demand in all areas provided that major shifts from electricity to gas as a fuel source do not occur. Some of the pressure-reducing valves and low pressure branches will need upgrading as building additions are made, particularly at Sturt and the main library.

By extending mains from the Union to Business/Law it is proposed to create a ring main capable of supplying all buildings in the main academic area to the 13000 EFTSU stage; at present the Humanities and Social Sciences buildings are not supplied with gas.

To serve the residential area it is proposed to extend branch mains in stages as required.

8.4 Communications

The University's draft Information Technology Plan[13] suggests major changes in the use of communications and strategic initiatives in the development of campus networks, library systems, new educational technologies and administrative systems. The suggestions are supported by this Review.

The fibre and copper cabling systems that connect all the present academic buildings and connect to Flinders Medical Centre are expected to need progressive major upgrading to meet the exponential growth in demand for communications anticipated in the planning period. High capacity connections will also be needed to University Hall and other residences. While no major physical obstacles are anticipated, it will be essential to follow a consistent orderly system for the location of all communication cabling to minimise costs and risks of disruption in the future.

External links currently also include microwave and satellite links and these are expected to continue to expand and change with developments in communications technology. Satellite dishes and the like may be significant additions to the visual environment. It is proposed that such items be concentrated in defined locations on the roofs of buildings.

8.5 Drainage

The existing main sewer system is in three parts. Sewer mains gravitate from the main academic buildings following the ring path around central park and the southern terrace in Car Park 1 to a connection on the western boundary near the water pumping station. Those from the residential area gravitate to a junction west of the Sturt oval. The Sturt buildings are connected locally to the public main from Bellevue Heights that traverses the site to the junction mentioned and continues to Sturt Road. The capacity of these mains is expected to be adequate for the future. Extensions will be needed to serve additional buildings and the planning of these will need to be carefully coordinated with that of other engineering services. In the immediate building environs, branch systems will be planned as part of the building projects.

As infill buildings extend outwards over the watersheds of the main academic ridges, attention will be necessary in the building design phases to reduce to a minimum the extent to which sewer pumps are needed (currently pumps are installed at the Sports Centre, University Club, Library Store and Press).

The discharge of stormwater to natural creeks where practicable, and to public drains where necessary, is expected to continue in the short run.

At Sturt it will continue to go to the stormwater pipe that traverses the site from Bellevue Heights to Sturt Road. The northern part of the residential area will be drained via extensions to the piped system along the line of Sturt Drive, which joins the drain mentioned above. The southern part of the residential area will discharge to the creek traversing the forest area.

As noted, roof water from the main academic precinct buildings is taken inwards to the central park to help maintain the lake. It is proposed to continue this arrangement for new buildings as far as practicable. The large drain from the lake under Car Park 1 (and the syphon with which it is equipped to protect the dam from surcharge) is expected to carry increased discharges from the buildings and run off from the park without difficulty.

In the longer run it may become both economically and environmentally attractive to collect and store stormwater, for example to use on the grounds. If this occurs it will be possible to identify appropriate sites for underground tanks and to develop a separate reticulation system for grounds watering in key areas.

8.6 Proposed Review of Strategies

The notes in this section outline the position regarding engineering services in general terms. Detailed work to review engineering services strategies, involving specialist consultants where necessary, is scheduled to take place in 1993.

9 OUTDOOR SPORTS AND RECREATION FACILITIES

9.1 Patterns of Use

The patterns of use of the fields and courts provided for outdoor recreation by members of the University has changed progressively since the 1960s. Variations were anticipated in some measure by the provision of broad terraces of playing fields on which pitches may be laid out to accommodate changing uses from time to time. Such flexibility needs to be maintained.

Overall it seems that the fields and courts are not under undue pressure at present, with some team sports based at locations other than Flinders. Even with the reductions suggested elsewhere in the Review, fields and courts are likely to continue to meet the needs of a larger University community and a much larger population of campus residents.

The changing patterns of use that have been experienced may be due in part to the older age profile of the campus population - students as well as staff. As an example, there has been increased interest in running and walking for recreation. This has been accommodated by marking the forest tracks and extending pathways in the park area. However, there is demand for other types of facilities that is not well catered for at present.

9.2 New Recreation Facilities

New kinds of outdoor recreation facilities may be needed increasingly in the future, including open space to which a few friends can go to kick a ball around at lunch time (other than the courtyards), more areas suitable for passive recreation and more outdoor seating in areas sheltered from wind.

Such facilities can readily be accommodated on the campus. Their actual provision may require consideration of factors such as the need to separate incompatible activities, security and cost on a case by case basis.

As with other development on campus, the 'user pays' principle may need to be applied in future to recreation facilities that are costly to maintain.

9.3 Swimming Pool

As previously noted, the 50 metre swimming pool at Sturt is unenclosed and used in the summer months only. It is used by the School of Education for teaching and by members of the University for recreation, and it is let to outside groups for training sessions. In the past it has been used by local schools and community groups, and attempts have been made to increase its use by the public on a user pays basis. The pool is an expensive facility to maintain and operate, and such attempts should be encouraged.

The possibility of enclosing the pool to allow year-round use has been mentioned. This appears to merit careful cost-benefit analysis.

10 THE LANDSCAPE

10.1 Future Character

Appreciation and a high level of satisfaction with the campus landscape has been expressed by members of the Reference Group and noted in consultation with staff. The student survey found that over 70 per cent of respondents rated the University grounds as good or very good.

The landscape has been created largely by the sustained efforts over almost 30 years of dedicated grounds staff. This has been done within the framework of long term design strategies provided by the University's landscape consultant. The strategies have been the subject of on-going review as the landscape has matured. They were last documented in 1981[14] and a further structured revision, incorporating the Sturt area, is planned for 1993.

The design strategies have allowed permanent landscape areas to be established with trees which may live for a century or more. However, as all landscape systems are dynamic and their elements all have finite lives, ongoing rejuvenation programmes are always necessary for the outcomes to remain effective. These programmes provide opportunities over time to incorporate improved plant material and management methods as they become available, and allow disruptive reconstruction phases to be avoided.

The strategies adopted to date have produced very effective outcomes from very limited inputs. As new buildings are developed in the future, it will be essential to match the increased workloads in their environs with increased inputs to avoid deterioration of the environmental quality of the campus as a whole.

Beyond this, further landscape improvements will be desirable to make more of the campus useable and enjoyable by more people. These will be achievable in measures proportional to the availability of further inputs for their construction and on-going maintenance.

A number of possible improvements of this kind have been suggested by staff and students, including:

- repaving the Plaza
- additional Plaza seating, sheltered from the wind
- a new fountain
- sculpture associated with buildings and in park areas
- a sheltered walkway across the dam supported by appropriate planting

- a gazebo on the lake

- development of parts of the central park to facilitate their more intensive use, including development of the natural amphitheatre below Engineering

- the development of glades for passive enjoyment in the forest and Hills Face Zone areas

- the various developments suggested elsewhere in this report at Sturt, in the residential area, and in the sports field area.

Further proposals may be identified as desirable in the future.

Landscape takes decades to mature. The campus environment now being used and enjoyed has been growing for almost 30 years. Further developments initiated this century will be fully appreciated a generation later.

10.2 Outdoor Laboratories

Further needs are anticipated for experimental gardens which may include animal pens and glasshouses for use as outdoor laboratories for biologists. Further needs for other outdoor laboratory areas for groups such as meteorologists, engineers and geographers are also anticipated. Some of these may need to be close to the buildings, and it may be satisfactory to locate others at a distance.

Three types of provision are proposed on the campus:

- additional open lab areas at roof level;

- additional garden areas close to buildings which may include glasshouse areas and animal pens;

- more remote areas in which selected plantings useful for occasional teaching and research may be located.

10.3 Hard and Soft Landscaping

As the use of the campus intensifies, more hard surfaces suitable for use by groups of people will be required. The landscape will tend to become more formal, at least near the buildings. Care and skill will be needed to select or create appropriate treatments in such areas.

One approach may be to develop a design manual for hard landscaping and related outdoor elements - paving, planters, outdoor seats, bins, signage, lighting and so on. This possibility will be considered as part of the landscape review in 1993.

11 THE CAMPUS PLAN

11.1 Integration

All the elements described in the preceding sections of the Campus Plan Review must be integrated effectively in a physical development plan for the future. As indicated, these include the following:

- balance of future building density and environmental quality
- proposed land use precincts
- arrangements for access and parking
- engineering services
- building design strategies
- staging provisions
- outdoor recreation and landscape strategies

11.2 The Campus Plan

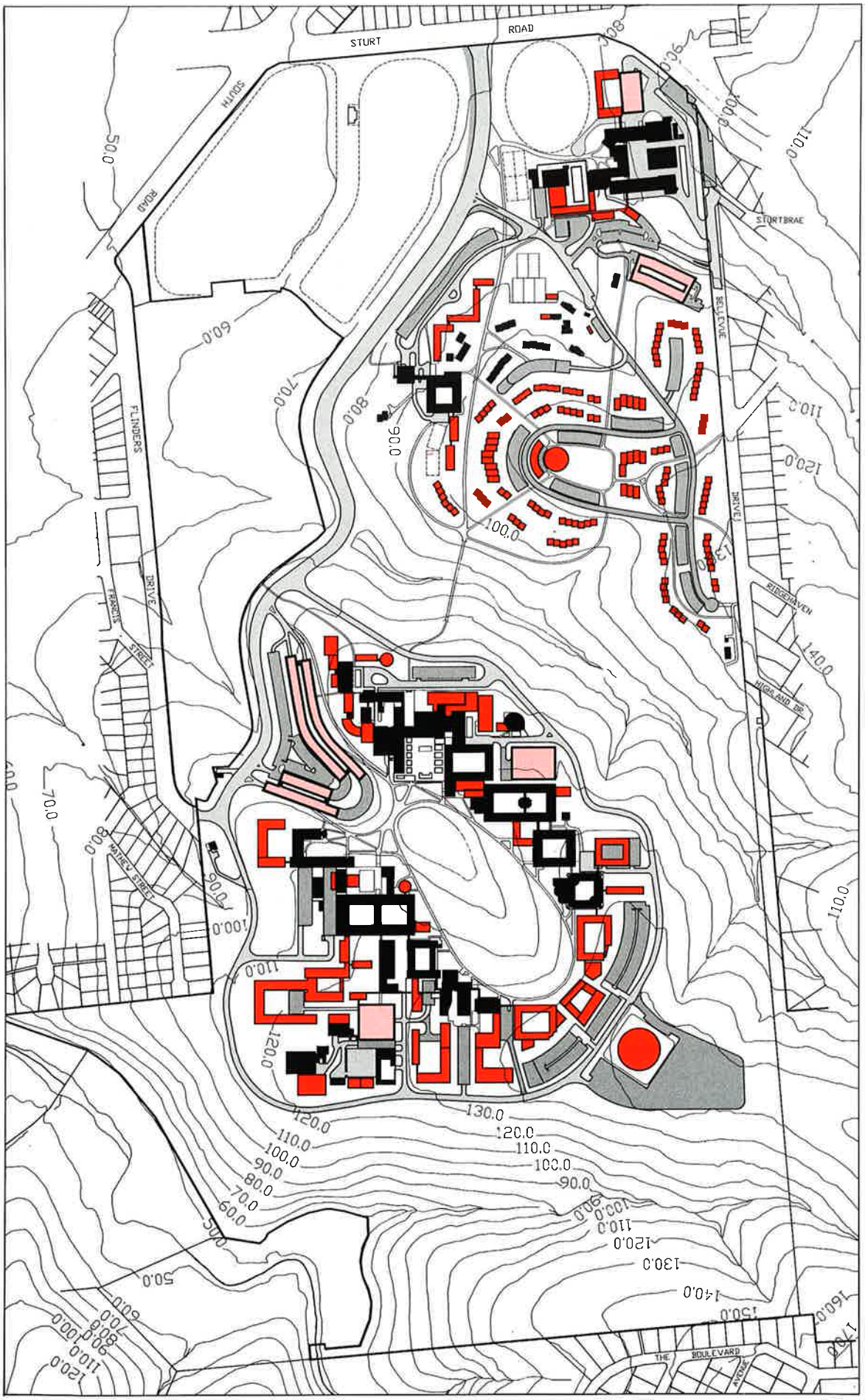
This campus plan attempts to combine the elements outlined above to create a framework for future growth to a 13000 EFTSU level which has the following main characteristics:

- It is a loose-fitting framework within which future development may occur.
- It can accommodate growth and change in the University as rapidly or as slowly as it actually eventuates in the future.
- It will allow the campus to function satisfactorily and to be sustained readily at every stage of growth.
- It will build on the aesthetic merits of the present development to provide an attractive physical environment that may be enjoyed by future generations of students and staff.

Diagram 12 illustrates how the building and other elements may be arranged on the site to meet the needs that are projected at the 13000 EFTSU stage. Attention is drawn to the following points:

- The existing central park and forest precincts and the Red Gums at Sturt are retained as recreation areas.
- Part of the sports fields area is shown redeveloped as a bus station, but all the ovals are retained.

View from the North, 1985



Scale 1 : 8,000

Diagram 12: Campus Plan (13000 EFTSU)

- University Drive is widened north of Sturt Drive and a number of other road improvements are shown, for example, slip-lanes to Sturt Drive, a layby at the Child Care Centre and relocation of the Ring Road/Engineering Road intersection.

- The residential precinct is fully developed in a manner that avoids blocking views from neighbouring houses and includes a neighbourhood centre and village green.

- A matrix system of building is developed at the Sturt precinct to create additional landscaped courtyards.

- The existing matrix system is developed further in the main academic precinct to create a complete ring of linked courtyard buildings around the central park, with further buildings.

- The main library is trebled in size.

- The possibility of developing teaching nodes economically around existing groups of lecture theatres is illustrated.

- A new student services centre and new Council building are shown, and growth of the Union, Sports Centre and Registry is provided for.

- Parking structures are provided for at Car Parks 1, 5, 9, 14 and 16 to allow increased demand for car parking to be met with least impact on the campus environment.

- A ceremonial building group is shown crowning the main academic precinct.

- Provision is made to consolidate Education at both academic precincts; consequently there will be some spare development capacity at the precinct not used for Education.

11.3 Staging

It will be many years before the 13000 EFTSU level is reached. The Scenario 1 EFTSU projections suggest it may be reached in two decades. Scenario 2 suggests a population of only about 10000 EFTSU by that time.

The University's Strategic Plan looks forward to a student population of approximately 10000 EFTSU by the year 2000.

A 10000 EFTSU level has been taken as a convenient level for which to identify the building and other requirements either for Scenario 2 or in an intermediate stage for Scenario 1.

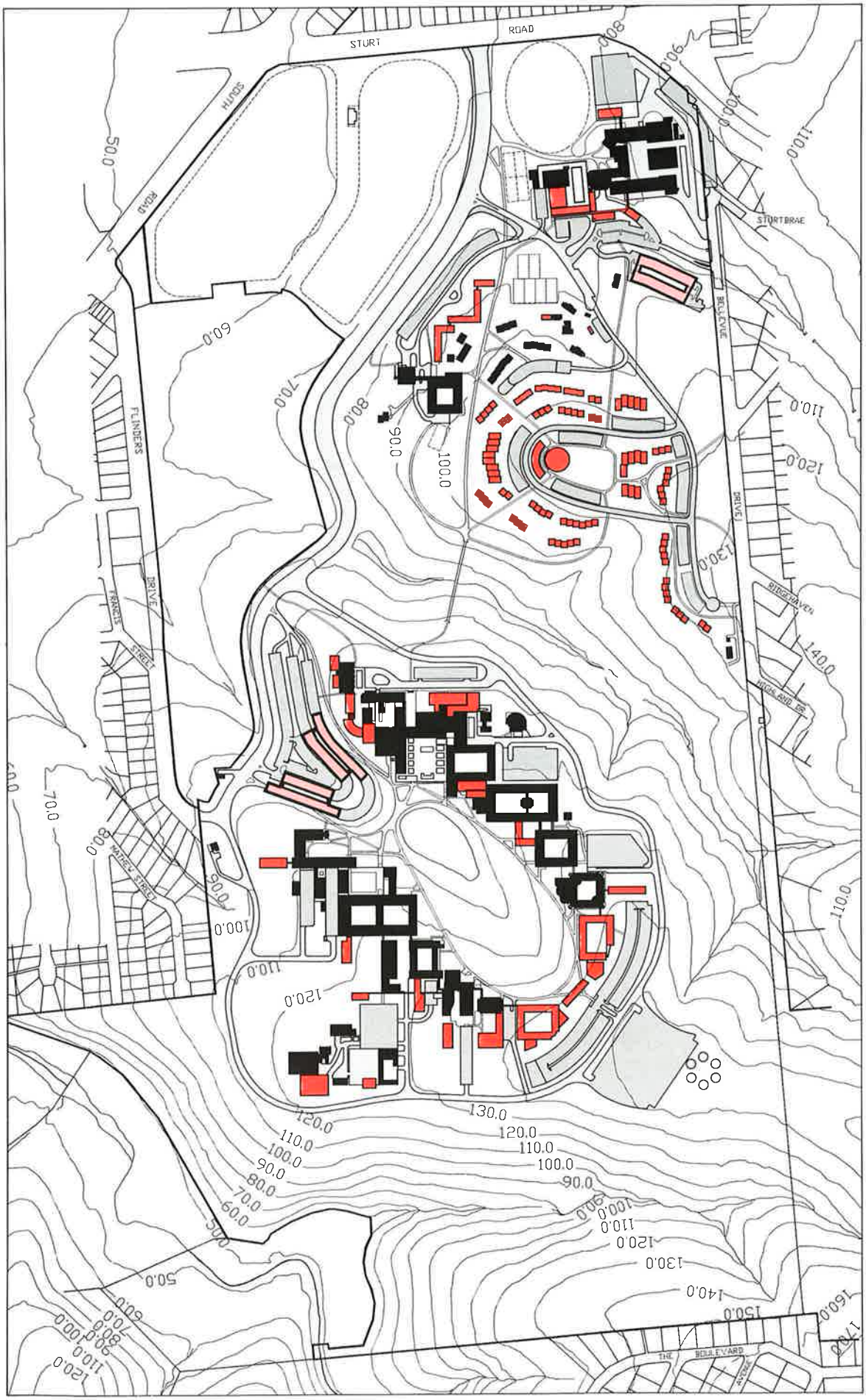


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Diagram 13: Staging (10000 EFTSU)

The following assumptions have been adopted:

- the ceremonial building group will be developed later
- provision for Education should be included at both academic precincts so again the accommodation built at the location not chosen for Education will be less than that shown
- the bus interchange should be shown.

A staging plan suitable for 10000 EFTSU is indicated in Diagram 13.

It should be noted that the actual extent of facilities required at each stage may vary from those shown, because of shifts in the direction of academic growth to areas other than those currently anticipated, shifts towards studying at home, or financial influences, either positive or negative.

It should also be noted that further intermediate stages may need to be identified in connection with rolling capital management plans.

11.4 Capital Programme

In the short run, it appears that the way in which the campus actually develops may be seriously constrained by financial considerations. Building may be limited to a level much lower than that estimated to be desirable to accommodate projected EFTSU growth. This may make it necessary for the University to continue to function in sub-optimal amounts of accommodation and may limit the direction of academic development and actual EFTSU growth.

This is an additional reason to view the campus plan as a framework for the long-term physical growth of the University rather than a prescription of the form the campus will take by a particular date.

View from the South, 1985

12 CONCLUSION

The review that has been carried out over the past four months has revealed that the early site development plans contained substantial reserve capacity. The Flinders site, enlarged as a result of the merger, can meet the needs of an institution roughly twice as large as was originally envisaged.

The revised campus plan suggests how the site may be developed to cover the requirements of a 13000 EFTSU university in the future in what is considered to be an appropriate and balanced way.

The development may be staged in increments as necessary, and the plan will allow the University to enjoy a finished campus environment at every stage of growth. An indication is given of the development envisaged at the 10000 EFTSU stage.

A number of detailed studies are suggested in the body of this Report and it is proposed that a further Review of the campus plan be carried out within ten years.

The proposals and suggestions advanced above are intended to provide guidelines for both short-term and longer-term decisions on the development of the whole campus, including its buildings, engineering infrastructure and landscape. It is hoped that these guidelines will be firm enough to produce campus development in which a sense of order is apparent. It is also hoped that the guidelines will prove flexible enough to accommodate future changes in academic programmes and organisation.

G J Harrison
University Architect

30 October 1992

Recommendations

1 The Campus Plan be accepted as a set of guidelines for future development.

2 Land use within the functional precincts outlined in the Review be confirmed and that policies on the use of green spaces be developed.

3 To ensure environmental amenity is retained, further development in the academic precincts should be in courtyard buildings, at a density not more than 20 percent greater than the existing density, with decked carparking.

4 Medium density housing for up to 1500 people be developed within the residential precinct.

5 The possibility of developing a transport interchange as outlined in Section 7.2 of the Review be investigated further.

6 Detailed studies be undertaken as necessary following the Review.

7 The Campus Plan be reviewed within 10 years.

GJH:PS (051192)

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APPENDIX A

Flinders University of South Australia

Report of the Student Survey

University Architect's Office

1 INTRODUCTION

In preparing the Review of the Campus Plan the University Architect's Office has engaged in various forms of consultation within the University and also with government agencies and local residents associations.

One component of this consultation process has been to conduct a survey of students to obtain information about their use and perception of services and facilities at the University. The following report outlines the methodology, results of the survey and planning implications of the results which may be incorporated into the Review.

1.1 Methodology

1.1.1 Questionnaire design

The questionnaire was designed for quick and easy completion using primarily pre-coded responses, eliminating the need for interviewers to record the responses.

Details were sought from students about their use of buildings and services, transport modes used and preferred, arrival and departure times, current accommodation type and extent of interest in on-campus accommodation. Students were also asked to rank a list of services and facilities and to provide demographic data and details of their student status.

1.1.2 Distribution and Collection

The questionnaire was distributed on 5 August 1992 in eight locations covering the northern and southern campuses and Flinders Medical Centre. The times and locations of distribution were advertised in the student papers; during the week prior to the survey, and the week of the survey.

Interviewers were stationed at the distribution locations to hand out questionaries and answer student queries. Students were encouraged to complete the questionnaire at the distribution location when they received it and asked to place completed questionnaires in the collection boxes provided at each location.

1.2 Sample

1021 questionnaires were completed accurately enough for coding purposes providing a sample of 10 per cent of the student population. The sample size is significant and allows meaningful inferences to be made from the sample to the total student population. Bias identified in the sample is outlined below.

2 CHARACTERISTICS OF RESPONDENTS

2.1 Student Status

The sample of students obtained by the survey was over-represented by full-time students, 87.2 per cent, as compared with the actual 1992 full-time enrolment of 58.9 per cent of the student population (see table 1).

Table 1: Student Status

	Survey Sample		Total Population	
	No	%	No	%
Full time	836	87.2	6248	58.5
Part time	123	12.8	3743	35.1
External	–	–	682	6.4
Total	959*	100.0	10673	100.0

* Missing cases 62
Source: Flinders University Student Survey, 1992

2.2 Age Structure

A comparison of ages of respondents and 1992 student enrolment data (see table 2) indicates that the sample population is significantly over represented in the age group 20 to 24 years and under represented in the 30+ years age groups.

Table 2: Percentage comparison of Age of Students Enrolled and Age of Respondents

Age in Years	Enrolled %	Respondents %
16 - 19	24.8	26.8
20 - 24	30.0	39.4
25 - 29	11.7	10.7
30 - 34	10.5	6.7
35 - 39	9.6	5.9
40 +	13.1	6.6
Total	100.0	100.0

Source: Flinders University Student Survey, 1992

2.3 Base Location of Studies

It is not possible to compare the base location of studies of the sample population with 1992 statistics of the total population, however the survey results indicate that 70.6 per cent of respondents were from the Main campus, 16.4 per cent were located at Sturt and 11.9 per cent were located at FMC.

2.4 Employment Status

Over 50 per cent of respondents were not in paid employment, and of those who were in paid employment 87 per cent worked part time.

3 ARRIVAL AND DEPARTURE TIMES

Table 3 supports the claim that Flinders is a 9 to 5 University, with 66.4 per cent of respondents arriving before 10 am and only 25 per cent remaining after 6 pm. Of those who remained after 6 pm only 5.8 per cent indicated that they would be leaving after 8 pm. The average number of hours spent on-campus on the day of the survey by respondents was 6.8 hours.

Table 3: Arrival and Departure Times of Students

Time	Arrival %	Departure %
<10 am	66.4	–
10 - 11.59 am	23.7	2.0
12 - 1.59 pm	7.3	7.6
2 - 3.59 pm	1.8	21.4
4 - 5.59 pm	.4	44.4
> 6 pm	.4	25.0

Source: Flinders University Student Survey, 1992

4 TRANSPORT

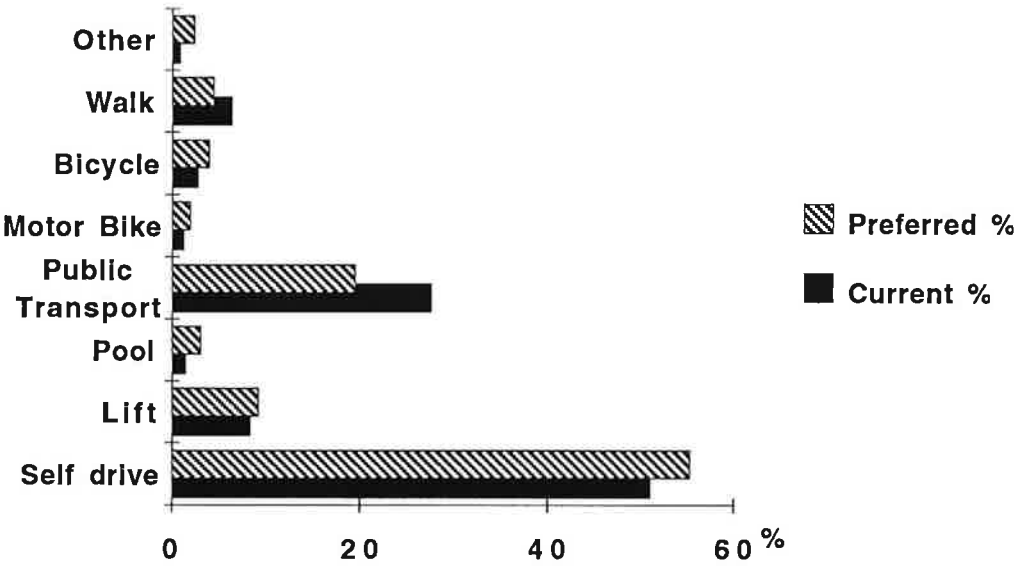
4.1 Mode of Travel

Private car use was the predominant mode of transport used by respondents on the day of the survey, with 61 per cent travelling by car. Of these 51 per cent drove their own car, 8.5 per cent had a lift and 1.5 per cent were in a car pool. An even greater percentage of respondents 67 per cent indicated that their preferred mode of transport was private car. Fifty five per cent preferred to drive their own car, 9 per cent preferred to get a lift and 3 per cent preferred to car pool. This strong preference for car travel was expressed notwithstanding that over a third of respondents considered parking to be inadequate.

A significant percentage, 28 per cent of respondents travelled by public transport on the day of the survey, however only 19.5 per cent of

respondents indicated a preference to travel by public transport. (See figure 1)

Figure 1: Comparison of Students Current Mode of Travel and Preferred Mode of Travel



Source: Flinders University Student Survey, 1992.

4.2 Loop Bus

Respondents who use their own car tend to use the loop bus services less often than those who travel by public transport. The loop bus was used by 4.9 per cent of respondents daily, 13.2 per cent most days or weekly, while 65 per cent never used the loop bus. Over half of respondents (583 students) rated the loop bus. Of these 58 per cent rated the loop bus as good or very good, 32 per cent as adequate and only 10 per cent said it was poor.

5 ACCOMMODATION

A preference for on-campus rental accommodation at market rates was indicated by 25 per cent of respondents. Of these 35 per cent currently live in the parental home, whilst a further 35 per cent live in shared rental accommodation off campus.

Seventy two per cent of respondents who indicated a preference for on-campus accommodation said they would prefer unit accommodation, whilst only 20 per cent indicated a preference for accommodation in a Hall of Residence. The remaining 8 per cent did not indicate their preference between unit or hall accommodation.

6 USE OF SERVICES AND FACILITIES

6.1 Students were asked to indicate which services they used daily, most days, weekly, monthly and never. Of the services provided by the Union, on a daily basis 34.3 per cent of respondents used the food services, but only 5.6 per cent of respondents used the liquor services daily. Only 6.6 per cent of respondents indicated that they never used the food services, however nearly 50 per cent never used the liquor service.

Sport facilities which included the Sports Centre and sport fields were not used as much as perhaps expected. Almost 50 per cent of respondents never used the Sports Centre and 80 per cent never used the sport fields. Of those who did use these facilities only 14 per cent used the Sports Centre daily or most days, and only 3.4 per cent used the sport fields daily or most days.

6.2 Weekend use of services and facilities

Students were asked to select from a list all of the services and facilities they used on weekends.

Almost 23 per cent of respondents said that they used none of the services and facilities listed on weekends.

The majority or 45.5 per cent of respondents indicated that they used library services on weekends. Food and liquor services were used by about 15 per cent of respondents, and sports facilities were used by 14 per cent of respondents on weekends.

7 RATING OF SERVICES AND FACILITIES

7.1 Academic Services and Facilities

Lecture theatres and tutorial rooms were rated by most respondents. Less than 40 per cent of respondents considered these facilities to be good or very good.

Tutorial rooms were ranked as adequate by 51 per cent of respondents while 18 per cent considered them to be poor.

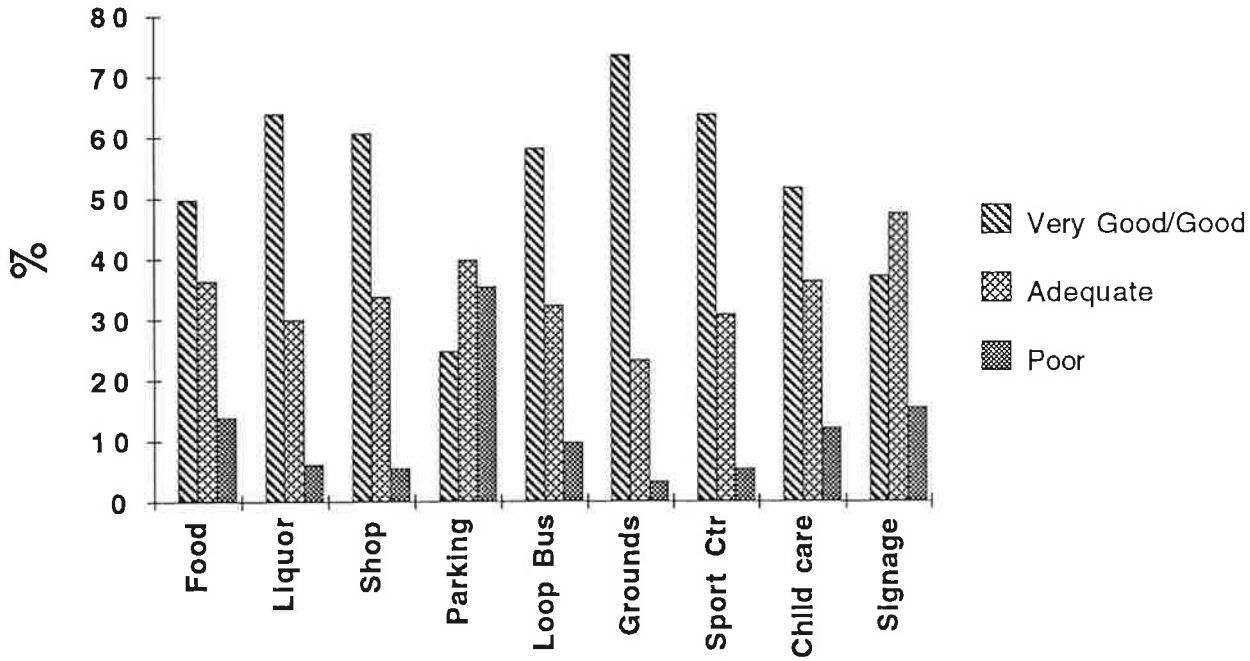
Lecture theatres were ranked as adequate by 40.5 per cent of respondents and 12.6 per cent considered them to be poor.

7.2 University Services and Facilities

As indicated in figure 2 the grounds rated highly with 73.5 per cent of respondents scoring the grounds as good or very good.

Parking was clearly seen to be a concern, with 35.4 per cent of respondents rating parking as poor, and only 24.8 per cent rating it as good or very good, the lowest rating of any service or facility.

Figure 2: Rating of Services and Facilities



Source: Flinders University Student Survey, 1992.

7.3 Library Services

Students were asked to rate the seating, services and hours of the Central, Sturt and Medical Libraries.

7.3.1 Central Library

Almost 900 students rated the Central library. The demands on space in the central library were evident with almost 20 per cent of respondents rating the seating as poor. This lack of study space available for private use by students, is possibly a reflection of the growing number of graduate students having to use the library for study as shortages of space particularly in the Social Sciences and Humanities force them to seek alternative study areas.

Services and hours were considered by over 50 per cent of respondents to be good or very good. Less than 10 per cent considered services and hours to be poor.

7.3.2 Sturt Library

About 300 students rated the Sturt library. There was a fairly consistent rating of seating, services and hours, with over 43 per cent of respondents rating these services as very good or good, and hours and seating were rated as poor by 15 per cent of respondents.

7.3.3 Medical Library

The Medical library was rated by 230 students. Seating, services and hours of this library were regarded by over 50 per cent of respondents as being good or very good. Ten per cent or less of respondents considered these as poor. The Medical library rated the highest standard of service and appears to offer sufficient space to meet students needs.

Collection of data from the section 'further comments' in the questionnaire noted 70 general concerns with library services, however none were with reference to the Medical library, reinforcing the general level of satisfaction with services and facilities in the Medical library.

8 CONCLUSION

For planning purposes a number of suggestions can be offered based on the results of the survey outlined above and allowing for the bias in the sample.

The strong preference expressed by respondents for travelling by car over other forms of transport, in particular public transport, suggest that the University will need to provide for graduated increases in parking provision.

The percentage of persons who expressed a preference for car pooling was double that of those who currently use a car pool. This is significant even though the percentages were low. Promoting car pooling and increasing the numbers involved in an organised car pool would help reduce the number of parking spaces needed.

Other indications such as the number of students working part-time and the number of mature age students are also likely to impact on the preference for private car travel. External factors such as the extent of commitment by the Government to public transport is also likely to influence the preference of students mode of travel, however improved provision of public transport to the University is no guarantee that students will use it.

The demand for on-campus accommodation and preference for shared unit accommodation at market rates expressed by respondents suggests a need to develop more units at a gradual rate without exceeding demand.

The high level of satisfaction with the 'green' environment of the campus suggests that future building development take into consideration ways of retaining the environmental amenity currently enjoyed. The limited use of the playing fields also suggests that perhaps students would prefer to have different 'green' areas developed to meet changing leisure time needs. As noted in the comments section, respondents expressed a desire to have more areas developed for relaxation purposes, for example by providing more seating.

Some of the information obtained by the survey indicated student concerns about the lack of space and inadequate services and facilities. Whilst these concerns are important for longer term planning purposes they are perhaps in need of addressing in the shorter term. For example the pressure on the Main Library, the inadequacies of tutorial rooms and the lack of services on weekends.

The Student Survey has enabled the Review to access the views of students at Flinders. Although a 10 per cent sample was achieved, caution needs to be used in making inferences back to the total population. Integrating the results of the Survey with other informal consultations that are occurring as part of the Review will enable a framework for land use and future development to be prepared.

Ms Pam Smith

September 1992

CAMPUS PLAN REVIEW
STUDENT SURVEY AUGUST 1992

HELP PLAN A BETTER CAMPUS

The Flinders University of South Australia,
University Architect's Office

In the questions below please CIRCLE the number beside the category you have chosen or, where necessary, write in the information required.

1 / *How often do you **VISIT** the following **BUILDINGS** on week days?*

1= Daily
2= Most days
3= Weekly
4= Monthly
5= Never

Sturt Buildings	1	2	3	4	5
FMC	1	2	3	4	5
Humanities	1	2	3	4	5
Social Sciences	1	2	3	4	5
Science	1	2	3	4	5
Registry	1	2	3	4	5
Library	1	2	3	4	5
Union	1	2	3	4	5
Sports Centre	1	2	3	4	5

2 / *How often do you **USE** the following **SERVICES** on week days?*

1= Daily
2= Most days
3= Weekly
4= Monthly
5= Never

Library	1	2	3	4	5
Union					
-Food service	1	2	3	4	5
-Liquor service	1	2	3	4	5
-Shop	1	2	3	4	5
Sports centre	1	2	3	4	5
Sports fields	1	2	3	4	5
Loop Bus	1	2	3	4	5
Child Care	1	2	3	4	5

3 / *Which services do you use on weekends?*

Library	1
Union	
-Food service	2
-Liquor service	3
Sports centre	4
Sports fields	5
None	6
Other, please specify	
.....	7

4 / *How did you travel to University today?*

Car you drove	1
Lift in car	2
Car pool	3
Public transport	4
Motor Bike	5
Bicycle	6
Walk	7
Other, please specify	
.....	8

5 / *What is your preferred mode of transport?*

Car you drive	1
Lift in car	2
Car pool	3
Public transport	4
Motor Bike	5
Bicycle	6
Walk	7
Other, please specify	
.....	8

SEE OVER TO COMPLETE QUESTIONNAIRE

6 / *What time did you arrive today?*

.....

7 / *What time do you expect to leave?*

.....

8 / *What type of accommodation do you currently live in?*

Parental home	1
Boarding	2
Own home	3
Rental accommodation	
sole occupant	4
share	5
Other, please specify	
.....	6

9 /

(a) *Would you prefer market rate rental accommodation on-campus?*

YES	1
NO	2(go to 10)
N/A	3(go to 10)

(b) *Would you prefer accommodation in:*

University Hall (college, with furnished study bedroom)	1
Shared furnished Unit	2

10/ *Using the rank order below, how would you rate the following:;*

1= Very Good
2= Good
3= Adequate
4= Poor
5= Don't Know

(a) ***University services and facilities?***

Union					
-Food service	1	2	3	4	5
-Liquor service	1	2	3	4	5
-Shop	1	2	3	4	5
Car parking	1	2	3	4	5
Signage	1	2	3	4	5
Loop Bus	1	2	3	4	5
Grounds	1	2	3	4	5
Sport Centre	1	2	3	4	5
Child Care	1	2	3	4	5

(b) ***Academic facilities?***

Lect. Theatres	1	2	3	4	5
Laboratories	1	2	3	4	5
Tutorial Rooms	1	2	3	4	5

(c) ***Library facilities and services?***

Main library					
-seating	1	2	3	4	5
-services	1	2	3	4	5
-hours	1	2	3	4	5
Sturt library					
-seating	1	2	3	4	5
-services	1	2	3	4	5
-hours	1	2	3	4	5
Medical library					
-seating	1	2	3	4	5
-services	1	2	3	4	5
-hours	1	2	3	4	5

FURTHER COMMENTS.....

.....

.....

Student Number..... Post Code .....

Age.....(years) Student Status FULL TIME 1
PART TIME 2

Year Of Studies 1ST 2ND 3RD Other .....

Base location of studies Sturt 1
FMC 2
Main 3

If employed in the paid work force do you work FULL TIME 1
PART TIME 2

APPENDIX B

Doc PC 22/92
Agenda Item 6.2

THE FLINDERS UNIVERSITY OF SOUTH AUSTRALIA

PLANNING COMMITTEE

PROJECTED LOAD IN EFTSU FOR 1993-2010

Following a request from the University Architect for long term student load projections to assist in the Campus Plan Review, the broad figures presented in the attached table were prepared by the Head of the Planning Services Unit.

It is the intention that these projections are used to estimate gross space needs by faculty and the overall university space needs for administrative and other service areas, as an overall framework for the development of the Campus Plan into the next century.

The approach used in the projections is to produce two scenarios -

Scenario 1: Assumes total projected load up until 1995 consistent with the data included in the recent Profile submission, followed by annual increases in total EFTSU of 2.5% until 2010. Represents a likely upper bound on enrolment projections.

Scenario 2: Assumes load until 1995 is as included in the Profile submission with intakes fixed at the 1995 levels for the remainder of the period to 2010. This is an extremely conservative estimate and represents a lower bound on expected enrolment levels.

Given recent (since 1988) enrolment growth in the University, Scenario 1 is achievable but will require proactive recruitment strategies and identification of market niches. The projections include fee paying students and growth will depend on the success at building up numbers of these students as well as increasing government funded places. It should also be noted that the figure for the year 2000 is consistent with the target set in the draft mission statement for the Strategic Plan. Projections under Scenario 1 at the faculty level also assume other trends for the future. These include:

(1) an increase in growth in law up until 1995 reflecting profile numbers, and a sustained growth at the 1995 level for the remainder of the period based on likely demand for post-experience education programs and postgraduate course development in law;

(2) a decline in health sciences numbers from the recent figures reflecting reductions in demand for medical graduates and a steady state situation in nursing figures;

(3) increased growth in the engineering and information technology fields, reflecting ongoing need for high technology trainees to support the development of new industries;

(4) an increase in growth in the business/accounting/economics areas due to retraining needs and demand from mature age students.

Recommendation:

It is recommended that the attached projection Scenarios be approved as the basis for further work on determining space needs in the Campus Review Plan.

LM Martin
Academic Registrar

LMM:LDZ
28 July 1992

PLANNING STRATEGY FOR METROPOLITAN ADELAIDE - 2020 VISION

(Extract from Memorandum to the Vice-Chancellor from the University Architect on 30 July 1992)

"You have asked me for comments on the Planning Strategy for Metropolitan Adelaide - 2020 Vision.

The Planning Strategy projects slow population growth for Adelaide (0.55% to 0.91% per annum from 1991 to 2021). Realisation of this growth would result in population of 1.13 to 1.17 million (say around 1.15 million) in 2001 and 1.23 to 1.38 million (say around 1.3 million) by 2021.

The population will age dramatically in the next 20 years. The number of people from 15-24 will decline in the next decade but will then increase marginally, particularly in outer suburbs.

However, population growth will depend on the retention and attraction of investment and jobs; the Review points to the importance of easy access, good transport, land availability, low business costs and quality infrastructure to achieve this. It refers to the MFP initiative and the emerging Economic Development Strategy, to the need for urban development to support economic development, and to the opportunities to assist in the restructuring of the metropolitan economy that exist in the North where there is ample vacant land well located in relation to Adelaide and with good links to the rest of the country and overseas.

The Strategy proposes limitation of growth to the South of Adelaide to conserve the southern vales and Willunga basin, but it suggests some growth in service industry to improve employment opportunities in the southern suburbs. It points to the advantages of urban consolidation, particularly in the inner suburbs (Clovelly Park to Gepps Cross).

The Strategy proposes that most urban growth be on the plains to the North (Elizabeth and Munno Para) after 2001. Improvements to stormwater management and environment quality (including open space, tree planting and ponding) are proposed to make the area attractive for residential development.

The Strategy goes on to propose a multi-centred city, among other things to reduce the demand for travel, and points to the opportunities provided by technological change, which is shifting employment from manufacturing to service industry and, through communications, reducing the need for employment to be located in the city centre. Strengthening of the Noarlunga Centre, the redevelopment and expansion of the Elizabeth Centre, and new centre at Munno Para are proposed. With Marion, Adelaide, Port Adelaide and Tea Tree Gully this would provide 7 centres.

Such developments could reduce growth in demand for commuter transport to the Adelaide City Centre and increase dependence on private transport and feeder buses to regional centres.

If the Strategy is implemented, the consequences for Flinders could be significant in the longer run. Growth in demand for our services from the southern region would be slowed and demand would tend to be transferred to the northern region. However, the shift would not begin for 15 years or more. There may be gradual change to the composition of the southern population also; the region could become increasingly attractive to middle income earners who may continue to be relatively more interested in higher education than low income earners notwithstanding equity programmes.

In summary then, it appears that:

1 the 2020 Vision planning strategy will have a limited impact on Flinders for 15 years or so, but then its impact will increase;

2 a regional focus will tend to be supported by the strategy;

3 improvements to public transport to the campus will tend to be more difficult to negotiate;

4 population growth in the southern region will be constrained in the longer run;

5 growth in demand for Flinders' services related to population growth in the southern region could be between 0.5 and 0.9% p.a. to about 2007, and lower thereafter.

I suggest that the implications of the planning strategy need to be kept in mind when considering growth plans for the University."