Prepared for:
The Board of Regents of the State of Iowa

Prepared by:
Sasaki Associates, Inc.

With the Campus Master Plan Steering Committee
and the Office of Facilities Planning and Management

First printing: February 1992
Reprinted: November 1995
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td></td>
</tr>
<tr>
<td>Executive Summary</td>
<td></td>
</tr>
<tr>
<td>Intent</td>
<td>1</td>
</tr>
<tr>
<td>The Campus Today</td>
<td></td>
</tr>
<tr>
<td>Future Campus Development</td>
<td></td>
</tr>
<tr>
<td>Master Plan Objectives</td>
<td></td>
</tr>
<tr>
<td>Summary of Master Plan Recommendations</td>
<td></td>
</tr>
<tr>
<td>I. Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Background of Study</td>
<td></td>
</tr>
<tr>
<td>Contents of Report</td>
<td></td>
</tr>
<tr>
<td>II. Existing Conditions</td>
<td>7</td>
</tr>
<tr>
<td>Project Area</td>
<td></td>
</tr>
<tr>
<td>History of Campus Development</td>
<td></td>
</tr>
<tr>
<td>Use</td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td></td>
</tr>
<tr>
<td>Architectural Character</td>
<td></td>
</tr>
<tr>
<td>Landscape Character</td>
<td></td>
</tr>
<tr>
<td>Circulation</td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
</tr>
<tr>
<td>III. Program</td>
<td>43</td>
</tr>
<tr>
<td>IV. Master Plan</td>
<td>47</td>
</tr>
<tr>
<td>Design Objectives</td>
<td></td>
</tr>
<tr>
<td>Campus Land Use</td>
<td></td>
</tr>
<tr>
<td>Core Campus Building Use</td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td></td>
</tr>
<tr>
<td>Circulation</td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
</tr>
<tr>
<td>Building Demolition</td>
<td></td>
</tr>
<tr>
<td>Phasing</td>
<td></td>
</tr>
<tr>
<td>V. Design Guidelines</td>
<td>81</td>
</tr>
<tr>
<td>Building Guidelines</td>
<td></td>
</tr>
<tr>
<td>Site Guidelines</td>
<td></td>
</tr>
</tbody>
</table>
**LIST OF GRAPHICS**

<table>
<thead>
<tr>
<th>Existing Conditions</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Master Plan Study Area</td>
<td>8</td>
</tr>
<tr>
<td>2. Existing Historic Buildings</td>
<td>10</td>
</tr>
<tr>
<td>3. Existing Land Use</td>
<td>16</td>
</tr>
<tr>
<td>4. Existing Building Use</td>
<td>17</td>
</tr>
<tr>
<td>5. Existing General Landform</td>
<td>19</td>
</tr>
<tr>
<td>6. Existing Perceived Formal Order</td>
<td>22</td>
</tr>
<tr>
<td>7. Existing Open Space Structure</td>
<td>23</td>
</tr>
<tr>
<td>8. Existing Regional Access</td>
<td>28</td>
</tr>
<tr>
<td>9. Existing Campus Approaches</td>
<td>29</td>
</tr>
<tr>
<td>10. Existing Vehicle Circulation</td>
<td>31</td>
</tr>
<tr>
<td>11. Existing Public Transit and O utlying Parking</td>
<td>32</td>
</tr>
<tr>
<td>12. Existing Service Access</td>
<td>33</td>
</tr>
<tr>
<td>13. Existing Pedestrian Circulation</td>
<td>34</td>
</tr>
<tr>
<td>14. Existing Bicycle Circulation</td>
<td>36</td>
</tr>
<tr>
<td>15. Existing Non-residential Parking Distribution</td>
<td>38</td>
</tr>
<tr>
<td>16. Existing Utility Issues</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. University Program Growth</td>
<td>44</td>
</tr>
<tr>
<td>18. Program Summary: Core Campus and Non-Core Campus</td>
<td>46</td>
</tr>
<tr>
<td>19. Program Summary: Academic and Non-Academic</td>
<td>46</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Master Plan</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Illustrative Master Plan</td>
<td>48</td>
</tr>
<tr>
<td>21. Proposed Land Use</td>
<td>49</td>
</tr>
<tr>
<td>22. Proposed Campus Approaches</td>
<td>56</td>
</tr>
<tr>
<td>23. Proposed Open Space Structure</td>
<td>58</td>
</tr>
<tr>
<td>24. Proposed Vehicle Circulation</td>
<td>63</td>
</tr>
<tr>
<td>25. Proposed Pedestrian Circulation</td>
<td>65</td>
</tr>
<tr>
<td>26. Proposed Service Access</td>
<td>67</td>
</tr>
<tr>
<td>27. Proposed Bicycle Circulation</td>
<td>70</td>
</tr>
<tr>
<td>28. Altered Public Transit Routes</td>
<td>72</td>
</tr>
<tr>
<td>29. Proposed Non-residential Parking Distribution</td>
<td>73</td>
</tr>
<tr>
<td>30. Proposed Building Demolition</td>
<td>76</td>
</tr>
<tr>
<td>31. Proposed Phasing</td>
<td>79</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design Guidelines</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>32. Building Setback Lines</td>
<td>83</td>
</tr>
<tr>
<td>33. Proposed North Quadrangle</td>
<td>86</td>
</tr>
<tr>
<td>34. Typical Pedestrian Corridor</td>
<td>87</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Existing Campus Parking</td>
<td>35</td>
</tr>
<tr>
<td>2. Expansion Program</td>
<td>45</td>
</tr>
<tr>
<td>3. Proposed Building Demolition</td>
<td>77</td>
</tr>
</tbody>
</table>
FOREWORD

When the last formal campus master plan was undertaken in the 1960's, the impetus to plan new facilities was the growing student body. The nation's post-war population growth demanded new classrooms, laboratories and residence halls to educate and house the new generation.

Some 30 years have passed, and much of the physical plant built in the 1960's is in need of rehabilitation and upgrading. Our scientific laboratories and classrooms in particular need to be expanded and improved to meet the requirements of modern research and teaching. The impetus for growth today and in the future will not be to accommodate larger numbers of students but to improve the quality of our facilities to remain current and competitive.

The new master plan, presented to the State of Iowa Board of Regents on June 19, 1991, will guide the physical growth of our campus during the next thirty years. The master plan accommodates approximately 2.9 million square feet of new space -- for research, instruction, and support. This represents an increase of approximately 40 percent over existing non-residential space. Importantly, the plan establishes the long-term capacity and organization of the campus core area south of the railroad and provides a diagram for eventual growth to the north.

The master plan has maintained the traditions of the campus by retaining the historic Central Lawn as a park-like open space and creatively links it to surrounding campus areas by a series of pedestrian corridors planted with trees and shrubs to emphasize the major connecting paths of the campus. A series of new quadrangle and courtyard open spaces and major street tree plantings improve the quality and coherence of campus spaces in the face of increasing building density and parking requirements. When the University graduated its first 26 students in 1872, the campus consisted of the Main College building and a number of small agricultural barns and professors' homes. Of particular significance to future planning was the "creation of an extensive natural landscape on the College grounds" by President A.S. Welch. More than 120 years later, we have reaffirmed this basic philosophy for future growth and expansion.

This plan cannot be, and was not intended to be, implemented at once. Outlining and directing the future growth of our campus is an ongoing process. By its very nature, the master plan is a reference document requiring the creation of action plans, in phases, that will ensure the attainment of campus development objectives. The plan represents the consensus of what the University community believes will be its most successful physical order for the future. What we should extract from the plan are the larger patterns of use, movement and form that will bring lasting coherence and beauty to the campus.

We welcome the campus master plan and the guidance it will provide in directing Iowa State University's growth into the 21st Century.

Martin C. Jischke
President
February 1992
EXECUTIVE SUMMARY

Intent

Iowa State University (ISU) seeks to create a planning framework that will accommodate potential building expansion of nearly 2.9 million gross square feet of space over the next 25 to 30 years. Coupled with approximately 10.5 million gross square feet of building area currently located within the campus study area, this new building program marks a significant development for the University and the Ames community.

The Master Plan described herein will serve as a guide for the anticipated expansion and improvement of the campus environment by defining future building locations, circulation systems, parking areas, open space structure and landscape character. It is intended to establish a coherent framework within which day-to-day siting and campus improvements can be made, with assurance that such decisions will relate logically to past and future campus organization.

The Campus Today

Iowa State College was first chartered by the Iowa General Assembly in 1858 and has since grown to a multi-purpose University which awards approximately 4,500 baccalaureate, advanced and doctoral degrees each year. The University employs approximately 6,600 faculty and staff and maintains an enrollment of approximately 25,000 students.

The University is located west of downtown Ames, adjacent to Lincoln Way. The City of Ames is strategically located 30 miles north of Des Moines on the only north/south interstate in central Iowa (Interstate 35). The City has a population of approximately 45,000 people and enjoys a position unique to towns across the country. It is a community containing a major educational and cultural institution, and is distinct from but readily accessible to a major market area.

The 490-acre core campus is generally defined by Lincoln Way to the south, Elwood Drive to the east, the Chicago and Northwestern Railroad to the north and Sheldon Avenue to the west. In addition to the core campus, the Master Plan study area also includes the University Student Apartment Complex and the Applied Science Center north of the railroad and the Iowa State Center, Veterinary Medicine Complex, Southwest Athletics area, Arberetum and ISU Research Park south of Lincoln Way. In total, the study area consists of 1,984 acres of land which contain over 125 buildings and approximately 10.5 million gross square feet of space.
Future Campus Development

Developments planned for the Iowa State University campus between now and the Year 2015 are significant. The most immediate and dramatic ventures which have both included in the University’s 10-Year Capital Program Request include additions to Kildee Hall and the Meats Laboratory for Intensive Livestock Research, a new Center for Innovative Teaching and Research for the College of Engineering, a new Agricultural Engineering building, a new Mathematical and Computer Science building, an addition to the College of Design building, a new Undergraduate Learning Facility, and facilities for library and general university usage. These projects constitute approximately 600,000 gross square feet of space that is anticipated to be constructed on the core campus over the next ten to fifteen years.

In addition to those projects registered with the State, the University anticipates providing 1.3 million gross square feet of additional academic and research space on the core campus over the next 25 years. At the same time, approximately 500,000 gross square feet of existing building area within the core will be removed because of obsolescence or because the space occupies land critical for other purposes. An additional 900,000 gross square feet of space is proposed to be located off-campus.

The new space will be necessary to meet the requirements of research and instruction for high quality up-to-date facilities and to provide adequate support space including library, administrative, day care, alumni, recreation and storage facilities. The space program is a synthesis of the University and College Strategic Plans, the Ten-Year Capital Program, and consultant interviews with deans and directors and represents a general consensus of Iowa State’s foreseeable space needs.

Master Plan Objectives

Listed below are a series of design goals and objectives which were established to guide the master planning process. The Plan encompasses a number of specific proposals to accomplish these objectives.

General Objectives

- Create an environment that supports the mission of the University and its programs in instruction, research, extension, and professional service;
- Establish an appropriate image for an institution of regional, national and international importance;
- Accommodate the projected growth within the established physical fabric of the campus in a way that reinforces and improves existing patterns of land use, circulation, parking and open space while making wise use of limited land resources.
Specific Objectives:

- Establish a clear sense of entry and arrival to the campus.
- Reinforce and extend the concept of the campus as a primarily pedestrian environment.
- Limit the land area devoted to parking in the core campus area to maintain high quality pedestrian open space.
- Enhance pedestrian linkages from the Central Lawn to campus edges.
- Preserve and extend the picturesque landscape character of the Central Lawn and Campanile.
- Expand and clarify the campus bicycle system and integrate it with the Ames community bike path system.
- Maintain and enhance the natural features that surround and pass through the campus such as the creeks, wooded areas and Lake LaVerne.
- Maintain the use of land resources within the campus core primarily for instruction and locate research and non-academic uses outside of the 10-minute walking zone.
- Incorporate concepts from the 1990 Ames Plan in the Campus Plan.
- Establish a flexible framework for growth that allows for incremental expansion over time.

Summary of Master Plan Recommendations

The Master Plan is illustrated in Figure 20. The plan seeks to establish a physical structure that is both flexible in its ability to accommodate planned and future growth and compelling in its clarity and form.

1. Use Organization and Facilities Accommodation

The Master Plan recommends that the historic pattern of land uses which located the College of Liberal Arts and Sciences in the center of the campus, the College of Agriculture to the east and northeast, and the College of Engineering to the west be reversed and built upon. Nearly 95% of the proposed expansion in the core area is assigned to these three colleges. The continued general clustering of expansion by major college units recognizes the adjacencies and proximities required among instructional facilities. The plan recommends that new research facilities be located at the perimeter of the core area. Most of this growth will take
place north of Pammel Drive, and in the long range future, north of the railroad tracks. Long range projects including student apartments, new administration facilities and storage facilities will also be located north of the railroad.

2. Circulation and Parking

The Master Plan recommends that the existing pattern of streets and pedestrian paths be maintained, with several modifications to enhance pedestrian movement and safety. Proposed modifications include the closing of Osborn Drive and Bissell Road to daytime vehicular traffic; the closing of Union Drive between Bissell Road and Welch Road; the closing of Union Drive between Knoll Road and Wallace Road; and the clarification of Welch Road and Knoll Road as the primary paths of arrival for visitors to the university. The maintenance of the majority of the existing street corridors allows for required access to buildings and minimum conflict between major utility corridors and new facilities.

The plan recommends that parking be supplied at an overall rate equal to the existing ratio of .87 parking space per 1,000 gross square feet of non-residential building space, and that parking be located at the perimeter of the core campus and not create a barrier between instructional and research facilities. In order to meet the long-term parking demand in the core area at the current rate, the plan recommends sites for three new parking structures. In the event that parking structures cannot be financed from the revenues of the parking system, the plan recommends the development of remote surface parking areas with frequent shuttle service to the core campus.

3. Open Space

The Master Plan recommends that the Central Lawn area generally bounded by Beardshear Hall, MacKay Hall, Curtis Hall and the Memorial Union be maintained as a park-like open space, and that it be linked to surrounding campus areas by a series of pedestrian corridors planted with trees and shrubs to emphasize the major connecting paths of the campus. A new pedestrian corridor is proposed to extend north from Morrill Road and serve as the dominant north-south link between campus expansion north of Osborn Drive and the Central Lawn area.

The plan also proposes a number of new quadrangle and courtyard open spaces and major street tree plantings to improve the quality and coherence of campus spaces in the face of increasing building density and parking requirements. Landscape and building design principles are set forth to guide future growth and reaffirm the traditional emphasis on landscape design at Iowa State.
1. INTRODUCTION

Background of Study

Iowa State University has a long tradition of campus planning, beginning in 1906 when the College invited J.C. Olmsted to visit the campus and submit a report discussing its future requirements for campus development. Over the years, a policy of long-range planning has aimed for orderly growth and protection of the campus area whole. In August 1990, the University hired Sasaki Associates of Watertown, Massachusetts to prepare a Campus Master Plan, marking the first Master Planning effort since 1968 when a Long-Range Plan was prepared for the campus.

The study effort began in September 1990 with a three-day workshop that included a field reconnaissance and extensive interviews with students, deans, administrators and other members of the campus community. The workshop also initiated the advice and counsel to the consultants of the Master Plan Steering Committee which consisted of the following members:

Master Plan Steering Committee Members:

- Larry H. Ebben, Chair, Professor and Chair, Professional Studies, College of Education.
- Jean W. Adams, Professor of Economics and Associate Provost.
- Charles W. Dekovic, Director, Facilities Planning, Campus Master Plan Project Administrator.
- Charles F. Frederiksen, Director of Residence.
- Robert R. Harvey, Faculty Senate, Professor of Landscape Architecture.
- Bill Hem, Student Government of the Student Body.
- Warren R. Maddox, Vice President for Business and Finance.
- Rabindra Makenia, Professor of Architecture and Associate Dean, College of Design.
- Thomas R. Rogge, Professor, Engineering Science and Mechanics, College of Engineering.
- Richard F. Ross, Professor of Veterinary Microbiology and Preventive Medicine, College of Veterinary Medicine.
- Todd Sanger, President, Graduate Student Senate.
- David L. Shrock, Dean and Professor of College of Business Administration.
- William W. Whitman, Associate Vice President, Facilities Planning and Management.
Ex-Officio Members:

- Catherine S. Brown, Committee Recorder, Planner, Facilities Planning.
- A. Dean Morton, University Architect, Facilities Planning and Management.
- Lynn Seiler, Associate Director, Facilities Planning.

ISU Foundation Representatives:

- H. Kenneth Bussard, President, Bussard/Dikis Associates, Ltd.
- John L. Dasher, President, Dasher Management, Inc.
- Donald P. Hattery, Chairman, Shive, Hattery Engineers and Architects, Inc.
- Charles E. Herbert, President, Herbert Lewis Kruse Blunk.

During the course of the study a number of other groups within and outside the University community were consulted. Representatives from the State Board of Regents reviewed work in-progress. The Mayor of Ames and other representatives from the City discussed regional and community factors which might affect University growth patterns. General information sessions were conducted on the campus to obtain a broad base of opinions on campus planning needs and to inform the campus community of the consultant's findings.

Throughout the first Inventory and Issues phase of the study, information obtained from the various individuals and groups, together with the consultant’s findings was analyzed, graphically interpreted and reviewed with the various committees. The analysis consisted of: 1.) a study of existing physical conditions as they relate to the region, community and site; and b.) the space needs program to which the plan could be directed.

During the second concept planning phase, a series of alternative concepts for campus growth and organization were prepared. The concept studies probed several aspects of future campus development and improvement including program accommodation, open space structure, parking displacement and reallocation, roadway realignments, and distribution of land use. Through several rounds of discussion, questioning and criticism, a single concept emerged for campus development that became the basis for the Master Plan.

Contents of Report

The Master Plan describes existing conditions of the campus in Chapter II and presents the program for new building area in Chapter III. Resultant planning recommendations for the Iowa State Campus are presented in Chapter IV. The final chapter presents a series of design guidelines that will help guide future design decisions as the plan is implemented.
II. EXISTING CONDITIONS

Project Area

The Master Plan project area consists of University owned land north of Highway 30. This includes the core campus, North Campus, the South Campus (which includes the Iowa State Center and Veterinary Medicine Complex), the Southwest Athletics Complex and Arboretum, and the Towers Dormitory area. Also included in the study area is the Applied Science Center northwest of the core campus and the ISU Research Park located immediately south of Highway 30 (See Figure 1). The study area consists of a total of approximately 1,384 acres of land and 10.5 million gross square feet of building area.

History of Campus Development

Much has been written about the rich history of the campus development at Iowa State University. The following is a brief summary covering the institution's growth from a small agricultural college in 1868 to its present condition of over 125 buildings. Existing historic buildings are shown on Figure 2.

1858-1880

In 1858 the Iowa General Assembly enacted a law establishing the "State Agricultural College and Model Farm" with provisions for a Board of Trustees to manage the College. Governor Ralph P. Lowe signed the bill on March 22, 1858, the date now recognized as the founding of Iowa State University. Trustees searching for a site for the new institution picked 658 acres of land in Story County west of Squaw Creek. In 1862 the Morrill Land Grant Act was passed which made federal lands available for sale to endow colleges whose aim was to promote "Liberal and practical
education ... in the several pursuits and professions of life." The new college opened its doors to a preparatory class in 1868 and in 1872 a class of 26 graduated at its first commencement.

The earliest development on the campus concentrated on the north of the Model Farm rather than the academic aspects of the new college. Construction of the Farm House and Cattle Barn began in 1860; the Main College Building, which was destroyed by a fire in 1902, was not started until 1865, due in part to the financial burdens of the Civil War period. By the mid-1870s, the Iowa Agricultural College consisted of the Main College Building, a series of agricultural barns to the east and several professors' homes to the south. Of particular significance to future planning was the "creation of an expansive natural landscape on the college grounds" by President A.S. Welch. By breaking up the prairie into a number of pleasing spaces, and the judicious placement of groups and masses of trees, President Welch established a basic format for future campus growth and expansion.

The Farm House exists today in its original location, and in 1966 was listed on the National Register of Historic Places.

1880-1900

Under the direction of President W.M. Beardshear, Iowa State College experienced a rapid expansion of both its physical plant facilities and student enrollment. Enrollment increased from 252 students in 1880 to 1,062 students in 1900. The pressure of this growth resulted in the construction of numerous buildings which still stand today. These include Sloss House (1882), Osborn Cottage (1882), the English Office Building (1884), Morill Hall (1890), the Hub (1892), Botany Hall (1893) and the Campus Hall (1897). Botany Hall is currently listed on the National Register of Historic Places.
Buildings constructed during this period were located somewhat haphazardly around a center green with an elaborate system of campus walks to connect one another. Each building with its surrounding landscape was treated as an entity unto itself. Significant decisions made during this time which have had a lasting effect on the pattern of campus growth include the preservation of the Central Lawn, the north-south orientation of buildings, and the creation of clear academic zones for the specific colleges (i.e., engineering to the west, agriculture to the east).

1900-1915

Rapid campus growth and expansion continued throughout the early twentieth century. Student enrollment increased from 1,062 students in 1900 to over 2,500 students in 1915. Enrollment increases, coupled with the burning of the remaining wing of Old Main in 1902 created housing and instructional demands that could not be met with the existing buildings and temporary structures. In order to accommodate the increased demands, a significant number of new buildings were constructed during this period. These included the Knoll (1900), the Landscape Architecture Building (1900), Marston Hall (1900), Beardshear Hall (1903), Alumni Hall (1904), East Hall (1904), Beardshear Hall (1905), Alumni Hall (1904), East Hall (1904), Curtis Hall (1906), the Power and Heating Plant (1906), the Engineering Annex (1909), State Gymnasium (1911), the Engineering Research Institute (1913) and Horticulture Hall and Greenhouse (1914). Alumni and Marsden Hall are currently listed on the National Register of Historic Places.

The location of a new agricultural building prompted the institution to address the question of permanent planning. In 1906, the College invited J.C. Onstead, noted landscape architect from Massachusetts to visit the campus and submit a report discussing future requirements for campus development. In his report he proposed "specific ideas about the form of
the college as an integrated park-town”. His proposals included locating the new agricultural building, Curtis Hall - due east of Beardshere, re-routing the rail line east what is today Oshorn Drive, and locating academic buildings within a “central core nucleus” and residential buildings in an “outer zone”. A system of contrasting densities between various campus functions was also a significant part of his scheme. Olmsted’s plan, while not formally adopted by the Trustees, did influence later thinking about how the campus should be planned and where buildings should be located.

1915-1930

Student enrollments increased to approximately 4,300 by 1930. In 1915, Mr. Lawrence W. Noyes, an alumnus of the College, donated a substantial sum of money for the purpose of retaining O.C. Simonds of Chicago to design a lake on the southern edge of campus. While working on this project, Mr. Simonds also consulted on the alignment of some of the roads, including a new entrance adjacent to the lake area.

The general scheme for development of the campus during this period provided for the housing of agriculture departments on the east side of campus; engineering departments on the west side; veterinary medicine on the north; fundamental sciences on the north and central part of campus; and home economics on the central mall. By 1930, the main campus was surrounded on three sides by stone buildings, opening to the south with the ex-ception of the Campanile, trees and Memorial Union (1927). Outside of the circle of stone buildings were a large circle of brick buildings including the Veterinary Buildings, Science Buildings, Chemistry Building, Engineering Shops and Animal Husbandry/Agriculture Labs. The area at the extreme eastern edge of the campus was provided for service buildings devoted to the upkeep of the entire plant. Two large interests of the college were provided at locations detached from the core.
campus, namely the gymnasium and playfields for men at the extreme west side of campus, and the group of women's dormitories (Freeman Hall, Barton Hall, Welch Hall and Oak-Elm Hall) which were built near the southeast entrance to the campus.

This period began a new era in which campus planning was guided by the long-range plans of design consultants. A team composed of Professors P.H. Elwood, A.H. Kimball and R.R. Rothacker, "developed plans for an interconnected system of landscape spaces together with a hierarchy of roads and related parking areas." The rapidly growing Agriculture College to the east and Engineering College to the west were conceived as being linked via the amenity of the Central Lawn. Automobile traffic was conceived as an activity which should be convenient to the academic facilities but separated from the pedestrian use of the facilities.

In 1935, a Twenty-Year Plan for the physical development of Iowa State College was prepared by Professor P.H. Elwood and A.H. Kimball. The plan was designed to serve as a general guide to the functional and aesthetic development of the landscape. The plan provided for a three-fold expansion of the College's central campus physical facilities between the years 1932 to 1965. In general, the plan acknowledged certain basic categories or zones of activities which are still prevalent today. These included the following:

- **Passive Areas** such as the central park and preserved Pammel Woods and College Creek;

- **Academic Use Areas**, including the Agriculture College to the east, the College of Science and Humanities to the north and the College of Engineering to the west.
- Residential and Physical Education Use Areas which were located south and west of the central park and the women's housing and physical education areas which were located south and east of the central park.

- Administrative and Social Activities which were located in a single use area at the southern extent of the central park.

- Agricultural Research and Maintenance Activities which were located in a continuous use area along the Northwestern Railroad tracks and in low lands east of the central park; and

- Integrated College-Public Activities which included such use areas as the football stadium and theater-auditorium.

The Twenty-Year Plan recommended a concentric loop circulation system which encircled the central park from Bissell Road to the west, to Wallace Road on the east and from Osborn Drive on the north to Union Drive on the south. The principal entrances into the loop were via West Street, Welch Road, or Knoll Road. Some of the advantages which the loop road afforded included two choices of direction to each destination, access to a use area without dividing them, continuous progressive movement for service circulation and convenient distribution of parking lots and separation of through traffic from the predominantly pedestrian academic areas.

While the bold concepts for vehicular circulation were not adopted, some principles such as the broad use areas for college activities and the forecourt in front of the Memorial Union have been generally distributed and implemented according to the Plan.

1950-1980

Student enrollment at Iowa State University skyrocketed from 8,100 in 1950 to 24,200 in 1980. With the increase in enrollment came a dramatic growth in facilities, with close to 75 new buildings constructed during the 30-year period. The period was characterized by residential expansion north of the railroad tracks to accommodate the needs of married students and the development of the Iowa State Center and football stadium south of Lincoln Way. By 1980 the physical plant had become a complex amalgamation of academic, recreation, research, residential and service functions. Significant campus buildings constructed during this period include: Agronomy Hall (1952), Westgate Hall (1955), Ames Lab Building (1961), Buchanan Hall (1964), Bessey Hall (1967), the Memorial Union Parking Ramp (1965), C.Y. Stephens Auditorium (1969), Carver Hall (1969), Hilton Coliseum (1971), Fisher Theater (1973), the Football Stadium (1975), the Scheman Continuing Education Building (1975), the College of Design Building (1978) and the Meat Laboratory (1977).
In 1968, the firm of Johnson, Johnson & Roy was selected by the University to develop a long-range development plan for the campus. Their plan was never formally adopted or rejected by the University administration but did serve as a basic framework for campus growth throughout the 60's and 70's.

1980 to Present

The 1980's were characterized by a peak enrollment of 26,500 students in 1985, followed by a downward trend that is projected to extend to the mid-1990's. Total student enrollment in the fall of 1990 was 25,339.

Approximately 25 new buildings were constructed during the 1980's with the focus primarily on research related activities. Significant new buildings constructed since 1980 include the Library addition (1983), Veterinary Medical Research Building #38, 39 and 40 (1983, 1984, 1990), the Black Engineering Building (1985), Agronomy addition (1986), Durham Center (1989), the Recreation/Athletic Facility (1990) and the Applied Sciences Complex II (1990). Buildings currently under construction include the Molecular Biology Building, the Meats Lab addition, the Dairy Industry addition and the Applied Science Auditorium.
Use

Land Use

The present organization of land use at ISU follows a logical pattern. The campus core is defined by the centrally located academic and administrative functions which surround the Central Lawn and Quadrangle open space. Residential uses are located to the southwest and southeast of the core, adjacent to a variety of both outdoor and indoor recreation facilities. Physical plant and service uses are concentrated to the east (see Figure 3).

There are, however, several less satisfactory relationships within the general land use pattern. First, while a majority of parking lots are appropriately located at campus edges, some lots such as Lots 50A and 50B off Wallace Road introduce vehicles to well used pedestrian spaces near the center of campus. A second concern is that academic uses in the Andrews-Richard House and the Child Development building are distant and isolated from the academic core. Third, while campus housing is well situated in proximity to the academic core and common facilities, residential uses north of the railroad tracks lack nearby informal outdoor recreation space. Finally, the proximity of Physical Plant uses to the neighboring Horticulture Gardens to the north present land use conflicts related to noise, truck and bus traffic and aesthetics.

Building Use

Building uses, for the most part, follow the logical pattern of land use allocation (see Figure 4). The central open space is framed by academic uses which include the College of Engineering, College of Design and College of Business Administration to the west; the College of Family and Consumer Sciences, College of Liberal Arts and Sciences and College of Education to the north; and the College of Agriculture and College of Liberal Arts and Sciences to the northeast and east. Administrative uses are concentrated on the western edge of the central open space. Common facilities such as the Parks Library, Alumni Hall and Memorial Union are situated within the heart of the academic core.

The building use pattern reveals that certain College functions, namely Agriculture and Engineering, are concentrated in clearly identifiable zones on campus. The College of Liberal Arts and Sciences, on the other hand, is scattered in various locations throughout the campus. The eastern half of the campus contains large, clearly identifiable zones of discreet building uses (Agriculture, Physical Plant, Recreation/Athletics and Residential). The western half of campus is characterized by a variety of smaller building use clusters. The area north of Osborn Drive contains a mix of academic uses including Engineering, Agriculture, Liberal Arts and Sciences, Education and Department of Energy (Ames Lab).
Form

Campus Structure

Campus structure refers to the overall spatial arrangement of roads, buildings and open space. A coherent campus structure can help make the campus easy to navigate and create a setting that is pleasant and memorable for its users. A clear structure also provides a framework for future growth. Several factors are responsible for the existing structure of the core campus. These include landform, the street system, campus open space, landmarks and campus edges.

Landform

The physical growth pattern of Ames is to a large extent based on the natural features of the land. The most prominent natural features are Squaw Creek and Skunk River. The original town was located on high ground between the two rivers. For the most part, the development which followed was located on this ridge of land.

The campus is located west of Squaw Creek, separated from the town by the floodplain along the creek. The campus occupies a broad east facing slope along the north bank of College Creek (see Figure 5). The highest areas of the campus core are in the northwest near the College of Design. The lowest areas generally lie east of and parallel to a line defined by Knoll Road to Union Drive, Union Drive to Wallace Road, and Wallace Road to Pammel Drive. Richardson Court and the President's House occupy a higher knoll east of College Creek. This knoll is separated from the core campus by the College Creek valley, and is experienced as a separate area of the campus.

Beardshear Hall is situated on a narrow promontory overlooking the Central Lawn. This, coupled with its monumental, civic, architectural character and its central location, define it as the dominant landmark of the campus. The land south of Beardshear and the Memorial Union consists of relatively steep slopes which descend to Lake LaVerne and Lincoln Way. The grade change, coupled with the Lake and Lincoln Way, create the southern edge of the core campus. The present campus entrances at Welch Road and Morrill Road occur at a low area in the College Creek valley. Higher ground along Lincoln Way lies both east and west. Visually, the low arrival point is anti-climactic.

West of the core campus, the land slopes steeply into the Clear Creek valley, marking a topographic edge to the campus. The land north of the railroad and east of Stange Road to 13th Street is uniformly flat and low.

The Street System

The existing structure of the ISU campus is further defined by a distinct pattern of informal and formal streets. Older parts of the street system are curvilinear and fitted to the contour of the land. Later streets establish a
Figure 5.
Existing General Landform
regular north-south, east-west grid that now frames the older street system to the north, west, south, and partly to the east. Perceived from its streets, the campus thus has two distinct identities: one being an informal order along the curvilinear roads where views and orientation are constantly shifting, and the other a more formal order consisting of straight street corridors lined with buildings.

Among the informal streets Knoll and Morrill Road are the most clearly defined. Morrill Road is bounded by unified informal campus open space and buildings along most of its length from Osborne Drive to the Union. Knoll Road has a pleasing alignment through a coherent park-like area. Where Knoll Road meets Union Drive the coherence of the landscape declines with the introduction of parking lots, service areas, and a variety of building and landscape treatments are introduced. There is a spatial ambiguity at Knoll Road and Union Drive because of their angle of intersection and because neither asserts dominance. Likewise, along Welch Avenue and the western part of Union Drive, spatial order is sometimes ambiguous.
Among the formal grid streets, Lincoln Way and Osborn Drive are the strongest linear spaces, although the diversity of building sizes, forms, setbacks and landscape treatments compromise their unity. Along both Lincoln Way and Osborn Drive, the higher elevations assume a stronger sense of place and arrival than the lower or sloping areas. For the most part, the alignment of buildings along the formal streets reinforce their linear order. Planing along the streets, however, does not always reinforce the spatial order of the street. A good example of street tree planting is along Wallace Road in front of the new Recreation Facility.

Campus Open Space

In spite of the formal geometric relationships and common alignment of buildings and streets that typify portions of the campus core (see Figure 6), the dominant theme of the campus landscape is informal and picturesque. The 26-acre Central Lawn, generally defined by the Union, Beardshear, MaKay and Curtis Hall is the physical and symbolic core of the campus. Its mature trees, historic Campanile, and surrounding landmark architecture make it the most coherent and memorable part of the campus.

Campus spaces outside of the Central Lawn that have a coherent form include the quadrangle west of Beardshear, the Union lawn, the park-like area around Lake LaVerne and the Knoll, the Agromomy building and Lagomarcino courtyards, and Carrie Lane and Richardson's Court (see Figure 7). The kind of space which most typifies the remaining part of the
Figure 7.
Existing Open Space Structure
campus is the space between buildings. These spaces tend to lack an overall organization, appearing as a byproduct to building placement, rather than a consciously designed setting for campus life.

Formal spatial order is apparent in the relationship between Beardshear Hall and Curtiss Hall, and to some degree between Alumni Hall and the quad space to the north. The north face of the Union with the fountain ensemble and crescent lawn to the north create a formally ordered setting. The dormitories at Richardson Court and Carrie Lane Court have a formal spatial structure, however, Richardson Court is somewhat loosely organized.

The College of Design is located at the west terminus of the Osborn Drive axis. Bessey Hall is placed at the south terminus of the Sorge Road axis and the library terminates the quad space. While all of these are formal building locations, in actual effect they do not achieve the status of strong axial landmarks because of the individual building designs.

Campus Landmarks

A number of landmarks also define the campus spatial structure. These include Beardshear Hall, particularly as viewed from the east; the Campanile; Alumni Hall; Curtiss Hall, viewed from the west; and the Memorial Union, viewed from the north. These buildings have strong symbolic value and express a traditional sense of dignity and civic purpose. There are other campus buildings that also serve as landmarks, but whose expression is modern or strongly associated with a specific use. Some are landmarks simply by virtue of their size and prominent locations. These include the Stadium, the Hilton Coliseum, Larch, Maple and Willow Dormitories, the Power Plant, Friley Hall, the Marston Water Tower, the College of Design Building and the new Recreation and Athletic Facility. The sculptures atop the new Molecular Biology building also will serve as landmarks.

Campus Edges

The boundaries of the campus are important in establishing a clear campus identity. In general the edges of the core campus are well defined, but there is not always a strong unity of architectural and landscape treatment along the edges. Campus gateways along the edges are also weakly defined.

The southern edge of the core campus is defined by Lincoln Way, a four lane arterial street. Planting along this edge is varied. The north side of the street is generally well planted, however, the planting lacks uniformity. The south side of the street is generally occupied by institutional, residential and commercial buildings that are subordinate in scale to the university buildings to the north.

The western campus edge is defined by Sheldon Avenue. This street serves as a demarcation between residential uses to the west and large scale academic facilities, parking lots and athletic facilities to the east.
The stone pillars at Sheldon and Unicorn Drive serve as the only strongly defined campus gateways. This gate, however, is oriented westward, while most of campus visitors arrive from an easterly direction along Lincoln Way. Steep slopes and woodland along the northern portion of Sheldon and Hyland Avenues further strengthen and define the western limits of the core campus.

The northern edge of the core campus is defined by the railroad, particularly east of Stange Road. West of Stange Road, the buildings along Pammel Drive function as the visual edge of the campus. Further to the northwest, Clear Creek, Pammel Woods, the cemetery and the golf practice area complete the northern boundary. The Pammel Court and Haworth Court apartments to the north of the railroad are connected to the core campus by an underpass at Stange Road and a pedestrian underpass further to the east. Because of the railroad, they are perceived as separate from the core campus.

The eastern edge of the core campus is less precise than the southern, western and northern boundaries. Unicorn Drive and Wallace Road serves as an inner edge to the academic campus. Elwood Drive demarks the physical limits of campus related uses.

Architectural Character

The core campus consists of a wide variety of building styles ranging from domestic to monumental. Campus buildings also occupy a variety of settings, including those which face the large unbroken open space of the Central Lawn, those which occupy sites amid a dense aggregation of other buildings, and those such as the College of Design which occupy fringe locations that are independent and free standing. The building settings significantly affect the way that buildings are perceived, and the relative need for planned relations between buildings.

Existing campus architecture is clearly identifiable by zone. The ring of buildings which surround the Central Lawn are generally made of limestone and designed in a classical style. The secondary ring consists of brick buildings with stone trim. The final ring consists of buildings located along the edge of campus which are generally made of brick.

In general, newer buildings including Bessey, Ross, Heady, LeBaron and Carver Hall, have less window area and less ornamentation than the older buildings on campus. Almost all of the older buildings process classical qualities with emphasis on cornices, base courses, and doorways. They also feature carefully scaled fenestration suggestive of human occupancy.

Consistency among architectural styles and materials is a function of the specific context of each building or group of buildings. A strong case can be made for fostering architectural harmony in cases where groups of buildings are closely aggregated and share common uses. The existing residential buildings which surround Carrie Lane Court is a fine example.
of a harmonious building group employing the Georgian style. On the other hand, the buildings that lie between Osborn Drive and Pammel Drive represent a wide range of treatments and scales. Most of these buildings are made of brick and share a common alignment, however, their visual diversity tends to supersede unifying tendencies. Newer buildings such as the Soil Tilth Laboratory add to the diversity. In such instances as this where buildings styles are so diverse that incoherence results, the landscape will need to play a stronger role in creating coherence.

**Landscape Character**

As the Olmsted Brothers observed in 1906, the dominant character of the campus is that of a "naturalistic park" consisting of "a Central Lawn diversified in grades and by groups of trees and single trees surrounded by picturesque buildings of irregular plan."...

Today the dominant landscape character of the campus continues to be the informal, naturalistic park style. While this style is not fully developed in the majority of the core campus area, the area around the Central Lawn where it is developed to maturity is sufficiently prominent to cast the landscape image of the entire campus. If one were to ask the average student or visitor to describe the campus landscape, they would undoubtedly mention the Central Lawn and its naturalistic beauty. The Central Lawn, as a mature park is unique in its size and quality among college campuses.

The character of the landscape outside of the Central Lawn area is affected by the increased density of buildings and the absence of large open spaces. These areas have often been planted with the same irregular plant groupings employed in and around the Central Lawn, however, the effect does not always seem to yield a coherent landscape. Too often, landscape continuity is broken by intrusive roads, service areas and parking lots.

The landscape to the south of the Central Lawn is also park-like. These areas are steeper sloping and more heavily wooded than the Central Lawn, particularly along College Creek, and south of Lake LaVerne. North of Osborn Drive and west of Marion Hall the character of the landscape is dominated by accommodations for the automobile. Streets, parking and service areas typically play a strong role in determining the visual scene. The informal planting arrangements employed along swaths and in the unpaved spaces between buildings help to create a pedestrian scale and character, but tend to be only partly effective in creating a coherent landscape expression.

Individual landscapes such as the prairie planting in front of the College of Design building and the Horticulture Gardens are contained settings that offer variety. These kinds of landscapes seem appropriate and welcome, as long as they are controlled in their relationship to the larger campus landscape.

---

26
Circulation

Three basic means of movement exist on campus: Vehicular (including cars, buses and service vehicles), pedestrian (including foot and wheelchair), and bicycle.

Campus Access and Approach

Lincoln Way to the south of the core campus, and 6th Street and 13th Street to the north provide principal east-west access between the campus proper and downtown Ames. 13th Street interchanges with I-35 to the east of Ames and provides for access to the campus for southbound traffic on this major highway (see Figure 8). From U.S. 30 to the south, Elwood Drive provides principal campus access by virtue of its interchange with that regional highway. Many other local roads provide for access to the campus, but are discontinuous and indirect when compared to the above three principal access routes. In the vicinity of the campus, Lincoln Way is the most heavily travelled local street, carrying approximately 20,000 vehicles in two directions daily. Elwood Drive, Pammel Drive, and 13th Street are also heavily travelled, each carrying in excess of 8,000 to 9,000 vehicles in two directions daily.

The primary vehicular approach to campus is from the south and east via the sequence I-35/E Highway 30/Elwood Drive/Lincoln Way (see Figure 9). Adequate signage exists to the intersection of Elwood and Lincoln. However, at this point there is not a clear indication to turn west on Lincoln Way. The Visitor Center located on Elwood Drive provides mapped campus information, but is not a strong visual marker of entry. Once on Lincoln Way the primary entry road into campus is not apparent. The Memorial Union is the first building to suggest the formality of a main entry, however, its parking structure and service zone create confusion.

A back door vehicular approach to campus from the north and east follows the sequence I-35/13th Street/Stange Road. Neither signage nor planning give direction to this route, and the sight line to Beasley Hall is weakened by a foreground bicycle parking lot. This sequence requires identification of appropriate destinations and signage at key intersections like Stange and 13th, and Stange and Pammel.

A secondary vehicular approach from the west exists via the sequence Lincoln Way - Sheldon Avenue - Union Drive. This sequence has strong potential as a visitor access given its proximity and direct route to the Library quadrangle, Alumni Hall and Beardsdale Hall. Also, entry signs at Union Drive that clearly mark a doorway.

Vehicular Circulation

In general, the ISU campus circulation is characterized by intermodal conflicts resulting from the mix of private vehicles, buses, pedestrians, bicycles, and service vehicles. These conflicts result in part from campus
development within the City's network of principal access corridors, requiring local traffic to mix with campus traffic in the immediate vicinity of the main campus. Problems also result from a lack of adequate and conflict-free transitional zones among modes (i.e., from parking areas to pedestrian paths, or from local streets to parking areas). The pedestrian-vehicle conflict situation is most serious along campus roads including Union Drive and Lincoln Way on the south of the main campus, on Wallace Road on the east, and on Pammel Drive on the north. These pedestrian conflict points are most evident at Union Drive intersections with Welch Road, Morrill Road, and Knoll Road and also across Wallace Drive at campus residence halls.

The interface between the City and campus road networks is particularly weak on the west side of the campus. Unlike the other edges of campus, there is no defined north-south arterial on the west to connect with Lincoln Way on the south and Pammel Drive and Elwood Drive on the east and north. A City proposal to extend Sheldon Avenue north to Pammel Drive and 13th Street, in conjunction with designating Sheldon and Hyland Avenues as a one-way pair, would serve to create a north-south arterial on the western edge of campus and create a western link in the campus loop road.

Vehicular circulation is characterized by limited access to roadways in the campus inner core. Existing campus roadways which are closed to most vehicular access include the on-campus segments of Morrill and Knoll Roads between Osborn Drive on the north and Union Drive on the south, Osborn Drive between a point to the west of Morrill Road and a point to the east of Knoll Road, and Union Drive between Morrill Road and the Memorial Union Building (see Figure 10). Access to these restricted segments is allowed only to faculty and staff who are appropriately assigned an access card to the parking areas served by these roads, and to emergency, service, delivery, and transit vehicles. The closure of these interior campus streets, although succeeding in augmenting the pedestrian nature of the campus, has also served to shift the transportation access problems to the peripheral campus streets, further exacerbating the situation which results from the coincidence of local and regional through traffic and campus access traffic.

**Bus Circulation**

Cy-Ride bus service is provided on seven different fixed routes throughout the greater Ames and ISU campus areas, and via Dial-a-Ride arrangements to locations within the Ames City limits. Fixed route service is generally available between 6:30 AM and 11:00 PM on weekdays with approximately 8 minute headways during the day and 30 minute headways during other times. On Saturdays and Sundays fixed route service is available from 9:00 AM to approximately 1:00 PM, with approximately 36 minute headways. During periods when ISU is in session, a free service called Night Ride operates within the City limits from 10:30 PM to 2:30 AM. The ISU campus, which is the largest single generator of Cy-Ride trips, is served by all fixed routes with the exception...
Figure 10. Existing Vehicle Circulation

- Primary Street
- Secondary Street
- Controlled Street
- Gate
of Route 5. A Parking Lot Shuttle service is also provided for a small fee between the Iowa State Center and the core campus via the existing Route 4.

Within the core campus of ISU, Cy-Ride routes use almost all campus roadways, including those restricted to other vehicles, and are focused upon Osborn Drive on the north (Routes 2, 3, 4, 6 and 7), Morrill Road and Union Drive (Routes 4 and 6), Bissell Road (Routes 2, 3, and 7) and Lincoln Way (Route 1). See Figure 11.

Service Access

The general structure of the campus core service system is to provide building service from driveways off campus streets. As shown in Figure 12, the system appears logical since the majority of the architectural fabric is structured by the 'long street patterns of Bissell Road and Pammel, Osborn and Union Drives. Service functions include trash pick up (dumpster access), deliveries, and facilities maintenance parking. Primary service vehicle destinations include the Printing Department and Purchasing Warehouse in the vicinity of Kooner Drive and the Central Stores Warehouse in the Physical Plant Building. In general, problems occur inside the Bissell, Pammel and Union zone where building density increases and service is not separated from parking, pedestrians and bicycles.

Pedestrian Circulation

The campus-wide system of sidewalks is for the most part a comprehensive and effective linkage of buildings, parking and activity sites. The primary pedestrian zone on campus is the area between Lincoln Way, Pammel Drive, and Bissell and Wallace Roads. This core area is an efficiently shaped pedestrian zone of approximately 200 acres, requiring a reasonable 10-15 minutes to traverse. As shown in Figure 13, a comprehensive network of paths provides access throughout campus. However, there is a hierarchy of movement. Concentrations of pedestrian movement link peripheral areas of parking, bus activity and residences, with the core campus academic facilities and open spaces. The most concentrated pedestrian activity occurs on paths within the Library quadrangle and around the Central Lawn with surrounding classroom and student service buildings as primary destinations.

The heaviest pedestrian pathways on campus include Lincoln Way, particularly at its intersection with Morrill Road, Welch Road, Wallace Road, Lynn and Ash Avenues; Union Drive between the Hughes, Helser and Friley Hall dormitory complex and the Library quadrangle; Pammel and Osborn Drives from the commuter parking lots to the north of Pammel Drive; Stage Road between the University Student Apartments north of the railroad; and the core campus: Union Drive across from the Memorial Union building; and between the Memorial Union and the dormitory complexes to the west of Wallace Road.
Bicycle Circulation

The City of Ames has proposed an extensive network of bikeways utilizing both existing roadways and sidewalks (bike routes) and also designated bicycle pathways (bike lanes or bike paths). Designated city bike routes on Lincoln Way, 5th-4th Street, 13th Street and Hyland Avenue effectively surround the campus and provide access to streets which penetrate the campus core. Once within the campus, bikes generally use the network of peripheral streets to access areas of bike parking (see Figure 14). According to the 1985 Transportation Plan, bicycle volume counts conducted within the campus resulted in a count of approximately 5,000 bicycle trips daily during peak seasonal usage days, a volume which was about ten percent of similar pedestrian counts conducted at that time. More recently, an October 1990 count of bicycles on-campus by 10:00 AM on a work day numbered 2,100. The bicycle environment on the ISU campus is characterized by significant pedestrian/bicycle conflicts on both streets and walkways, and despite the presence of 60 bike racks providing about 3,100 bike stalls, inadequate provision in areas where they are most necessary.

The size and distribution of bike racks, and impromptu bike parking areas indicate a concentration of bike parking surrounding the core campus open spaces. Large numbers of bikes are parked on Osborn Road, the controlled portion of Knoll Road, and in a core stretching along the west and south edge of the Literary quadrangle and extending to Memorial Union. Bikes do use pedestrian paths and service ways if required to access bike parking. In general, there is respect for the pedestrian-only nature of the Literary quadrangle and paths in and around the Central Lawn. But the system is not structured in such a way to fully separate pedestrians from bikes.

Parking

Currently, there are 12,155 parking spaces on-campus (exclusive of 335 spaces for motorcycles and 157 loading spaces for service vehicles). The 13,155 vehicle spaces are allocated as follows in Table 1.

<table>
<thead>
<tr>
<th>Designated Use</th>
<th>No. of Spaces</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserved</td>
<td>1,933</td>
<td>15</td>
</tr>
<tr>
<td>General Use</td>
<td>1,726</td>
<td>13</td>
</tr>
<tr>
<td>Commute Student</td>
<td>2,155</td>
<td>16</td>
</tr>
<tr>
<td>Resident Student</td>
<td>2,398</td>
<td>18</td>
</tr>
<tr>
<td>Resident Staff</td>
<td>295</td>
<td>2</td>
</tr>
<tr>
<td>Visitor (campus)</td>
<td>276</td>
<td>2</td>
</tr>
<tr>
<td>Visitor (ISU Center)</td>
<td>4,195</td>
<td>32</td>
</tr>
<tr>
<td>Handicapped</td>
<td>177</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>13,155</td>
<td>100</td>
</tr>
</tbody>
</table>

35
As shown in Figure 15, there is a consistent organization to the location of parking lots in the core campus area. Large surface lots primarily for general staff and commuters are located at the fringes. Inside of Bissell, Pamell and Wallace Roads, where building density increases, there is general infiltration of small lots reserved for faculty and staff. Parking reserved for resident staff and students exists adjacent to the dormitory complexes at the east and west ends of Lincoln Way. Primary visitor parking is located at the Memorial Union ramp located east of the Memorial Union with access from Lincoln Way.

The University also provides services open to the general public in numerous campus buildings. Parks Library, Morrill Hall, Durham Center, Meat Laboratory, Agromony Hall, and the Music Building among others, require access by private vehicle or proximity to visitor parking areas.

Infrastructure

Existing Utility issues are summarized in Figure 16.

**Domestic Water**

The present campus water system is largely supplied by the city. The core campus water network is connected to the city system in three places, providing good water pressure and ample capacity. The recent trend in water pipe replacement on campus has been toward PVC pipe.

The University heating plant and the surrounding buildings are on a separate University water system. This system is supplied by four wells, about 120 feet deep, in the Haber Road and horticulture garden area. A University plant treats the water, largely for iron removal, to potable water standards. Approximately one million gallons per day are used by the heating plant cogeneration facility. Some of these University wells are circa 1930 and will have to be replaced in about 10 years. Capacity of this water system is adequate and the only planned treatment plant improvement would be routine replacement of equipment.

The satellite areas on the outer edges of campus, such as the North Campus, South Campus, the Veterinary Medicine Campus, the ISU Research Park and the Applied Science Area are all connected directly to city water service.

**Sanitary Sewer**

The existing University wastewater is entirely discharged to the city system which is treated at a new plant south of the city, with discharge into the Skunk River. The new city wastewater treatment plant has excess capacity for at least 20 years and is being paid for partially by the University. The University payments are based on its discharge, so a major effort was recently made to isolate all stormwater inflow from the sewerage system, such as building roof drains.
Figure 15.
Existing Non-residential Parking Distribution
Some of the University network is composed of aging vitrified clay pipe which is being gradually replaced with new pipe to improve the system and reduce groundwater inflows. The majority of the University system is reported to be in adequate condition.

Gravity flow is used for the entire University sewage system, which includes the north campus (up to 13th Street) and the core campus. The only exceptions to gravity flow are a few pumps used to lift wastewater from certain low buildings. The low point for the network, and its connection to the city system, is at the intersection of Wallace Road and Lincoln Way. The University/City sewerage connection will remain in this location, however, some of the pipe sizes should be increased. The City has been increasing the size of its sewer main in Lincoln Way to increase available capacity.

The outlying areas of campus are directly connected to city sewerage. This includes all University property south of Lincoln Way and the Applied Science Area.

**Electrical**

The existing University electrical system uses coal fired boilers and steam turbines to generate power at the cogeneration plant. The bulk of the coal used is trucked in from a coal mine 90 miles south of Ames. The coal is burned in a fluidized bed process with limestone to absorb the sulfur. The resulting bottom ash, and fly ash precipitated in a bag house are trucked back to the coal mine.

The coal fired heat boilers generate steam that drives turbine generators to create the University electrical power. The electricity is transmitted around campus via several substations through underground conduit. Electrical power to the Iowa State Center, the Stadium and Veterinary Medicine Campus is generated by the University, but is fed through city power lines. University power is also supplied north of the railroad tracks, up to 13th Street, however, these are above ground lines. Power for University Village, the Towers Residence area, the ISU Research Park and the Applied Science area is provided by the City.

Increasing demand for electrical power, about 8% per year will require future expansion and improvements to the heating plant (see Figure 16). The primary cause of this increasing power demand is the growth of research facilities on campus. Research facilities currently use five times more electricity than academic classroom buildings.

The current capacity of the University power plant is matched by the campus power demand. A new turbine is planned to increase University generating capacity and additional power could be purchased from the City until 1996. Since the existing power plant is near full capacity, tied to the city electrical system are necessary to provide reliability.

In the near future (1992) a new 69 kV substation and overhead power lines...
Development Implications
- New tunnel under R.R.
  for steam heat and
  chilled water
- High groundwater table

Development Implications
- New chiller plant
- Steam and sewer upsizing
- Improved electric
distribution

Connection to
City Sewer Main

Figure 16.
Existing Utility Issues
are planned to improve connections to the city electrical system and to provide access to power from Iowa Power or Iowa Electric Light and Power Company. With this outside power link the University can purchase power to meet increasing future demands.

The University is currently planning to restore railroad delivery of coal to the heating plant by the mid to late 1990s, thereby eliminating coal truck traffic.

Steam Heat

The campus steam heat is a secondary product from the steam powered electrical generation plant. The low pressure steam leaving the power turbines is distributed around campus to heat buildings. The demand for electrical power has outpaced the demand for additional steam heat, resulting in an excess of heating steam capacity.

Steam distribution improvements are the only limitation of the system. Currently there are 4.5 miles of concrete tunnels (6 x 7) around the core campus which carry the steam supply and return condensate pipes. Some of the steam pipes date back to 1910 and there is ongoing pipe replacement.

The existing steam network is all south of the railroad tracks from the heating plant in the east, across to Basell Road in the west. Steam pipes extend south across Lincoln Way to the Iowa State Center and the Veterinary Medicine campus. The Veterinary Medicine campus does have its own steam plant, though it is not economical to operate, and has been shut down. Steam heat is currently not supplied to the Towers Residence area, the ISU Research Park or the Applied Science area.

Chilled Water

Campus air conditioning and equipment cooling operates on a network of chilled water pipes supplied from the heating plant. The network consists of both supply and return flow pipes, about 15 years old and in good condition. The network supplies the core campus south of the railroad tracks and the Iowa State Center. The chilled water plant is now at capacity and there are some localized supply problems.

The Veterinary Medicine Campus has its own chilled water plant, operating on heating plant steam. Other University facilities on the core campus provide their own air conditioning services with individual building equipment.

With outlying research facilities putting the greatest demand on the chilled water system, it is anticipated that a new chiller plant will need to be built near Basell Road for summer operation only to meet peak demands.
**Stormwater Drainage**

Stormwater drainage on campus has traditionally been along ditches flowing to College Creek and Squaw Creek. Today the system is largely piped underground to these same creeks. The system is in good condition as it was rebuilt seven years ago. A major effort took place in the last few years to separate stormwater, including roof drains, from the sanitary sewerage system. Lake LaVerne is now reported to be separate from the stormwater system and College Creek, in an effort to improve lake water quality and prevent situation.

**Gas**

Gas is supplied by Iowa Electric Light and Power Company and is distributed around campus in a University pipe network. The network is in good condition, having been rebuilt recently to eliminate leaks. The network does extend north of the railroad tracks along Haber Road, around the main campus and south to the Iowa State Center. The other outlying areas of campus are supplied with gas independent of the University network.

Research facilities put the heaviest demand on the gas system with use as lab gas and fuel for emergency generators. The University network now has two outside connections and supply is good.

**Telecommunications**

University telecommunications provide computer networking in addition to phone service and have been upgraded recently to fiber optic distribution between node stations. The lines are in underground conduits, which being only three years old, have considerable remaining capacity.

**Solid Waste**

An agreement between the University and the City of Ames requires that all University solid waste be sent to the city waste-to-energy plant.
III. PROGRAM

The proposed Master Plan program consists of new building needs which total approximately 2.9 million gross square feet of space over the next two to three decades. Accounting for removal of obsolete facilities of approximately 700,000 gross square feet, the net new space amounts to 2.2 million gross square feet. This represents an increase of approximately 40 percent over existing non-residential building space.

The new space reflects ISU's goal to become the best land-grant university in the nation and to achieve a level of external funding that moves the institution from a Research II to a Research I Category as classified by the Carnegie Foundation. The new space is necessary to meet the requirements of research and instruction for high-quality up-to-date facilities and to provide adequate support space including library, administrative, day care, alumni, recreation and storage facilities.

Figure 17 illustrates projected program growth at Iowa State in relationship to previous University growth. Compared with past growth, the current 25-Year program is somewhat less than the previous 25 years, but still exceeds the overall average annual growth of the University by 25,000 gross square feet per year. Historically, the overall average annual growth per year at ISU is 90,000 gross square feet. The average rate of growth since 1968 (the year of the previous Master Plan) has been 177,000 gross square feet per year.

It should be noted that while previous facilities growth during the 1960's and 1970's was primarily enrollment driven, the proposed future growth is driven by the need to modernize and improve the quality of classrooms and laboratories for teaching and research. The planning assumption is that enrollments at Iowa State will remain at approximately 25,000 over a ten year planning horizon. In actuality, the number of high school graduates will drop in the mid-1990's, causing a slight dip in enrollment, but these numbers will recover by the turn of the century. On the other hand, the intent is that research and its associated support space will increase dramatically.

Approximately 2 million gross square feet, or 69 percent of the total program, is proposed within the core campus. Approximately 61 percent of the total program is concentrated in the sciences in the Colleges of Engineering, Liberal Arts and Sciences, and Agriculture. Nearly 90 percent of the proposed expansion in the core area is assigned to these three Colleges. (See figures 18 and 19)

The most immediate and dramatic ventures which have been included in the University's 10-Year Capital Program Request include: additions to Kildee Hall and the Meat Laboratory for Intensive Livestock Research, a new Center for Innovative Teaching and Research for the College of Engineering, a new Agricultural Engineering building, a new Mathematical and Computer Science building, an addition to the College of Design building, a new undergraduate Learning Facility, and facilities for library...
and general University storage. All told, these projects constitute approximately 650,000 gross square feet of space that will be constructed in the core campus over the next ten years.

The Master Plan space program is summarized below. The program is a synthesis of individual College Strategic Plans, the Ten-Year Capital Program, the Special Projects Agenda and consultant interviews with deans and directors. It represents a general consensus of Iowa State’s foreseeable space needs over the next 25 years and provides the basis for the preparation of the Master Plan.

**Figure 17:** University Program Growth
<table>
<thead>
<tr>
<th>College of Engineering and Technology</th>
<th>Expansion Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Aircraft Systems</td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td>100,000 GSF</td>
</tr>
<tr>
<td>Center for Innovative Teaching and</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>160,000 GSF*</td>
</tr>
<tr>
<td>Sweeney Hall Addition</td>
<td>43,000 GSF</td>
</tr>
<tr>
<td>Town Engineering Addition</td>
<td>49,000 GSF</td>
</tr>
<tr>
<td>Material Science Building</td>
<td>50,000 GSF</td>
</tr>
<tr>
<td>Analytical Instrumentation Center</td>
<td>20,000 GSF</td>
</tr>
<tr>
<td>Center for Materials Synthesis</td>
<td>125,000 GSF</td>
</tr>
<tr>
<td>Multi-Center Support Space</td>
<td>200,000 GSF</td>
</tr>
<tr>
<td>Materials Technology Laboratory</td>
<td>66,000 GSF</td>
</tr>
</tbody>
</table>

| College of Agriculture               |                   |
| Social Science Building              | 100,000 GSF       |
| Agriculture Products Center          | 37,000 GSF        |
| Intensive Livestock Research Facility| 65,000 GSF*       |
| Intensive Livestock Research Facility| 9,000 GSF       |
| Entomology                           | 40,000 GSF        |
| Agricultural Engineering             | 75,000 GSF*       |
| Agricultural and Natural Resources - |                   |
| Growth and Expansion                 | 75,000 GSF        |
| Center for Agricultural Technology   | 75,000 GSF        |

| College of Liberal Arts and Sciences |                   |
| Science Building                     | 126,000 GSF*      |
| Instruction Building                 | 70,000 GSF*       |
| Behavioral Sciences - Growth and Expansion | 75,000 GSF |
| Biological Sciences - Growth and Expansion | 75,000 GSF |
| Physical Sciences - Growth and Expansion | 75,000 GSF |
| Letters - Growth and Expansion       | 72,000 GSF        |
| Communications                       | 32,500 GSF        |

| College of Design                    |                   |
| Design Addition                      | 65,000 GSF*       |

| College of Family and Consumer Science|                   |
| Department of Human Development and  |                   |
| Family Studies                       | 41,300 GSF        |

| College of Veterinary Medicine       |                   |
| Intensive Livestock Research Facility| 42,400 GSF        |
| Ames Lab                             |                   |
| Center for Materials Synthesis and   |                   |
| Processing                           | 33,000 GSF        |
| General Support Facility             | 33,000 GSF        |
| Residential                          |                   |
| Student Apartments (300 units)       | 200,000 GSF       |
| Memorial Union                       |                   |
| Memorial Union Expansion             | 100,008 GSF       |
| Recreation                           |                   |
| Recreation/Athletics Addition        | 20,000 GSF        |
| Football Stadium Improvement         | 12,000 GSF        |
| Soudowski Athletics Complex          | 5,000 GSF         |
| Support                              |                   |
| West Campus Chiller Plant            | 3,000 GSF         |
| North Dining                         | 10,000 GSF        |
| Library/Museum Storage               | 45,000 GSF*       |
| General University Surcharge         | 40,000 GSF*       |
| Support Service Center               | 300,000 GSF       |
| Day Care Center                      | 20,000 GSF        |
| Exhibition Hall                      | 50,000 GSF        |
| Student Health Center                | 40,000 GSF        |
| U.S.E.A. Research Facility           | 70,000 GSF        |

| Total Master Plan Program            | 2,938,200 GSF     |

| Additional Long-Range Capacity Within|                   |
| Master Plan Framework                |                   |
| Core Campus                          | 480,000 GSF       |
| North of Railroad                    | 580,000 GSF       |

Notes: *Denotes projects on University's 10-Year Capital Program Request.
Figure 18.
Program Summary:
Core Campus and Non-Core Campus

Figure 19.
Program Summary:
Academic and Non-Academic
IV. MASTER PLAN

Design Objectives

The Master Plan is illustrated in Figure 20. Several key design objectives lie behind the disposition of buildings, roadways and open space recommended in the Master Plan. At the more general level, the Master Plan seeks to:

- Create an environment that supports the mission of the University and its programs in instruction, research, extension, and professional service;
- Establish an appropriate image for ISU which is an institution of regional, national and international importance;
- Accommodate the projected growth within the established physical fabric of the campus in a way that reinforces and improves existing patterns of land use, circulation, parking and open space while making wise use of limited land resources.

At a less general level, additional design objectives guide the plan.

- Establish a clear sense of entry and arrival to the campus.
- Reinforce and extend the concept of the campus as a primarily pedestrian environment.
- Limit the land area devoted to parking in the core campus area to maintain high quality pedestrian open space.
- Enhance pedestrian linkages from the Central Lawn to campus edges.
- Preserve and extend the picturesque landscape character of the Central Lawn and campusile.
- Expand and clarify the campus bicycle system and integrate it with the Ames community bike path system.
- Maintain and enhance the natural features that surround and pass through the campus such as the creeks, wooded areas and Lake LaVene.
- Maintain the use of land resources within the campus core primarily for instruction and locate research and non-academic uses outside of the 10-minute walking zone.
- Incorporate concepts from the 1990 Ames Plan in the Campus Plan.
- Establish a flexible framework for growth that allows for incremental expansion over time.

47
The historic structure of the Iowa State University campus is very strong and appealing. The Master Plan builds on the existing patterns and recommends changes only to clarify, enhance, or establish better connections that now exist. The following section of this report describes the key concepts behind the design of the future campus.

**Campus Land Use**

At a general level, the uses of all land owned by the University in the City of Ames will, by and large, be the same in the future. Future uses of each area included in the Master Plan Study Area are shown in Figure 21 and described below starting from the north.

**Applied Science Complex**

Existing research uses will remain on this parcel for the foreseeable future and no expansion of facilities is planned. The distance of this complex from the core campus limits its attractiveness to potential users.

**North Campus**

This term is used to refer to the land north of the Chicago and Northwestern Railroad Tracks. Much of this land is currently occupied by Venker Golf Course and Brookside Park. Both of these uses will remain, as will several student housing complexes including Schiller West Village, University Village and Hawthorn Court apartments.

The East Pammel Court housing area located immediately east of Stange Road, however, has been removed and the land will be used partly as open recreation fields and partly reserved for future expansion of research or housing. A Day Care Facility should be located near Stange Road surrounded by the proposed open recreation fields. This location has good access from Stange Road and is near families living in student housing and faculty/staff working in the core campus.

The East Pammel Court area could also serve as a site for the relocated horticulture gardens. The open land just west of Stange Road and north of the tracks (where West Pammel Court is located), will in the future be used for surface parking and long term future expansion of research facilities.

Just south of the East Pammel Court housing complex immediately north of the tracks, carpool storage and offices will remain and library storage and general University storage will be located. The Fire Institute offices will also remain in this area but fire testing activities should be located remote from the campus.

**Core Campus**

The core campus refers to all University land north of Lincoln Way and south of the Chicago and Northwestern Railroad tracks. Currently, this
PROPOSED PROGRAM

College of Engineering and Technology
E1 Center for Aircraft Systems Reliability 100,000 GSF
E2 Center for Innovative Teaching and Research 160,000 GSF
E3 Swain Hall Addition 43,000 GSF
E4 Town Engineering Addition 40,000 GSF
E5 Material Science Building 50,000 GSF
E6 Analytical Instrumentation Center 20,000 GSF
E7 Center for Material Synthesis 125,000 GSF
E8 Multi-Center Support Space 200,000 GSF
• Materials Technology Laboratory 60,000 GSF

College of Agriculture
A1 Social Science Building 100,000 GSF
A2 Agricultural/Protostar Center 37,000 GSF
A3 Intensive Livestock Research Facility 65,000 GSF
A4 Intensive Livestock Research Facility 9,000 GSF
A5 Entomology 40,000 GSF
A6 Agriculture Engineering 75,000 GSF
A7 Agriculture and Natural Resources - Growth and Expansion 75,000 GSF
• Center for Agricultural Technology Development 75,000 GSF

College of Liberal Arts and Sciences
L1 Mathematical and Computer Science Building 126,000 GSF
L2 Instruction Building 70,000 GSF
L3 Behavioral Sciences - Growth and Expansion 75,000 GSF
L4 Biological Sciences - Growth and Expansion 75,000 GSF
L5 Physical Sciences - Growth and Expansion 75,000 GSF
L6 Letters - Growth and Expansion 75,000 GSF
L7 Communications 32,000 GSF

College of Design
D1 Design Addition 65,000 GSF

College of Family and Consumer Science
F1 Department of Human Development and Family Studies 41,300 GSF

College of Veterinary Medicine
• Intensive Livestock Research Facility 42,400 GSF

Ames Lab
AL1 Center for Materials Synthesis and Processing 33,000 GSF
AL2 General Facility Support 33,000 GSF

Residential
R1 Student Apartments 94,000 GSF (140 units)
R2 Student Apartments 106,000 GSF (160 units)

Memorial Union
M1 Memorial Union Expansion 100,000 GSF

Recreation
R2 Recreation/Athletic Addition 20,000 GSF
• Football Stadium Enhancement 12,000 GSF
• Southwest Athletics Complex 5,000 GSF

Support
M1 West Campus Chiller Plant 3,000 GSF
M2 North District 10,000 GSF
M3 Library/Museum Storage 45,000 GSF
M4 Central University Storage 40,000 GSF
M5 Support Service Center 300,000 GSF
M6 Day Care Center 20,000 GSF
M7 Exhibitions Hall 50,000 GSF
M8 Student Health Center 40,000 GSF
M9 U.S.D.A. Research Facility 70,000 GSF

Total Master Plan Program
2,938,200 GSF

Additional Program Capacity
C Total Additional Program Capacity 1,028,000 GSF

Notes:
• Denotes program to be accommodated at campus locations not shown on plan
G Denotes future parking garage

Figure 26. Illustrative Master Plan
area contains a mix of University uses, including academic, research, housing, recreation and support. All of these uses will remain and some will expand within this area in the future. Specific plans for expansion are described in the "Building Uses" section which follows. In general, infill development will occur within the campus and will expand north into the surface parking area currently located between Pamell Drive and the Railroad tracks. Academic uses will be concentrated in the center to maintain reasonable walking distances between classes. Research uses will be located toward the periphery.

**Iowa State Center**

Uses at the Iowa State Center will remain the same as at present except for a proposed addition of a 50,000 gross square feet Exhibition Hall to the Schuman Continuing Education Building.

**Stadium Area**

Uses in the Stadium area also will be largely the same in the future with the addition of an athletic services building at the north end of the stadium.

**Campustown Area**

Two parcels of land in the Campustown Area are currently owned by the University and a third is likely to be affected in the future. The first parcel is on Lincoln Way between Gray and Ash Avenues. This parcel is the site of Buchanan Hall, a residence hall for approximately 140 students. A second residence hall of approximately 140 units is proposed on this site and is shown in the Master Plan.

The second parcel is the large resident student parking lot on Hayward Avenue which is currently used by students who live in Friley Hall. Two options exist for this parcel. The first proposal is the continued use of the land for parking but for use by commuter students rather than as storage parking for residence hall students. This would potentially release on-street parking in Campustown for use of shoppers rather than commuter students, and would also bring more activity to Campustown on a daily basis. A second proposal for this site is to develop it for housing. With the demolition of East Pamell Court, additional off-campus housing will be needed by students. The Campustown area is a good location for student housing given the proximity to the campus. The site is particularly well-suited to housing, since it is located within an existing neighborhood yet at the edge of a retail district that can supply convenience shopping needs.

The Health Services unit of ISU might also, in the future, be located in the Campustown area. As an autonomous unit, this program of 40,000 gsf can be moved from its current location in the Student Services building to another location. Campustown would accommodate this use provided the site is close to the campus for easy access by students. Easy vehicular access to this use is also important especially during emergencies. A
potential site for the Student Health Center is at the southeast corner of Lincoln Way and Lynn Avenue. This location affords close proximity to the Memorial Union and easy access from Lincoln Way.

Although not-owned by the University, many fraternities and sororities exist in the Campustown area. Continuation of this use is assumed and supported in the Master Plan.

**Arboratum and Southwest Athletics Complex**

Arboratum land will continue to be preserved for this use.

A 5,000 gsf building is planned for the Southwest Athletics Complex containing public restrooms, concession stands, lockers, and baseball equipment storage.

**Tower Residence Halls**

The Tower Residence Halls and nearby recreation fields will all remain in their current uses. No additional buildings are planned in this area. During the times when student populations are lower, some dormitories may be converted to single rooms from double rooms. The buildings will remain in use as student housing.

**Veterinary Medicine Area**

Uses in the Veterinary Medicine campus will remain the same with the addition of a 42,400 gsf Intensive Livestock Research Facility. Some renovations of existing buildings may also occur over time.

**ISU Research Park**

A Master Plan was completed in March 1987 for the Iowa State Research Park prepared by Stanley Consultants. Implementation of this plan has begun and will continue. The 1987 plan is fully endorsed and no changes to it are proposed by this campus plan. The Research Park plays a role that differs significantly from any other research areas on the core campus or at the Applied Research Complex in that its purpose is specifically to foster joint research between the University and private corporations. The desired result of this collaboration is not only the expansion of knowledge and its application to high tech industries, but also the creation of jobs and expansion of the local tax base. The current location of the ISU Research Park is ideally suited to meet these goals with easy access to the University, Gateway Center, and Route 30. The Campus Master Plan has identified two programs which should be located at the Research Park. These include the Materials Technology Laboratory (66,000 gsf) and the Center for Agricultural Technology Development (33,000 gsf).
Core Campus Building Use

This section discusses future building uses proposed in the Master Plan in the core campus area. The uses of buildings and land in all other areas of campus are described in the previous section.

In defining the future uses of as yet unbuilt buildings, some flexibility is required. Based on the anticipated need for future buildings as discussed in the Program Chapter of this report, the Master Plan has identified general locations for each building on the campus. Equivalently, over the twenty-five-year time horizon of this plan, changes in need and priorities will occur that will necessitate changes in the plan. Therefore, while the definitions of building use may seem very prescribed, it is more important that the general principles of proposed use organization be understood and the specifics worked out over time.

General goals in determining future building use are the need to allow the University and its Colleges and administrative units to function well; and yet at the same time to establish a setting that fosters interaction both intellectually and socially. These goals are achieved in three ways:

1. Preserving the centermost area of the core campus for instruction, with peripheral areas used for research, housing and athletics.

2. Concentrating each College in and around its current and historic location.

3. Selected placement of "gathering spots" around the core campus to facilitate interaction.

Each of these principles is discussed below.

Academic Facilities in the Center

The importance of educating the undergraduate student is central to the mission of ISU. Because of this, the Master Plan places priority on maintaining all the buildings and functions that are focused on instruction within the central part of the core campus within a 10 minute walking zone. It is important that students and faculty be able to walk comfortably from one class to another within the allocated 10 minute class change time. While there will be some exceptions to this principle, such as the distance to the Veterinary Medicine Complex, most new academic programs are located within a 10 minute walk (or 1,000 foot radius) from Beardshear Hall.

The obvious implications of using this guideline are that new academic buildings are placed in the core campus in infill locations, and that some new program will likely displace some current buildings that do not currently fully utilize their sites. Another implication is that research, housing, athletic fields and parking are located, by and large, at the edge or outside the 10 minute zone. Research that is integrally affiliated with
academic programs remains near the academic functions. Research programs that are not integral to undergraduate teaching are located beyond the 10 minute zone.

Concentrating Each College

Historically, the patterns of building use at ISU have been very clear. Concerning the largest colleges, the College of Liberal Arts and Sciences has been located in the center of the campus, the College of Agriculture has been to the east and northeast, and the College of Engineering has been to the west. The other colleges: Business Administration, Design, Education, and Family and Consumer Sciences, have also by and large been concentrated in singular locations on the core campus. There are several exceptions to this, however. The first is the Department of Human Development and Family Studies which is located in Richardson Court some distance from the other departments of the College of Family and Consumer Sciences located in MacKay and Lehman Halls. The plan anticipates a new building or remodeled existing facilities in the Richardson Court area to accommodate the space needs of the Department of Human Development and Family Studies and the Laboratory School.

An additional exception is a general one which applies to nearly every college, and is simply that all the classes of each college are not all held in their respective headquarters buildings but are scattered around the core campus in various locations. This is necessary now because of schedule conflicts, classroom size constraints, and the need for room with specialized teaching facilities. This situation will inevitably continue to exist to some degree in the future. The principle of attempting to concentrate the facilities of each college in one location, however, has nonetheless been used to guide the location choice for projected facilities on the core campus.

Figure 10 illustrates how this principle is achieved in the Master Plan. The historic areas of the campus in which each college is located have been respected and additional facilities projected for construction in the future are located nearby. This has been achieved in the plan for the Colleges of Agriculture, Business Administration, Design, Education, and Engineering. Selective demolition of buildings and reuse of piers is required to achieve this goal in some areas. (Building Demolition is discussed in a subsequent section of this report.)

The College that will be the least concentrated is the College of Liberal Arts and Sciences, but this is appropriate given its widely varying programs. A key proposal for this College is that of locating the college administration in a renovated Old Botany building, thus giving the College a visible location on the Central Lawn. With the relocation of the Liberal Arts and Sciences administration, Carver Hall will provide expansion space for the College of Business.

While the Colleges are concentrated in current locations as much as possible, there will be shared multi-disciplinary use in the future of the
land north of Pammel Drive. Research functions of the Colleges of Agriculture, Education, Engineering, and Liberal Arts and Sciences will converge here, along with future expansion of the Ames Lab.

The Master Plan also identifies sites for growth beyond that identified in the program. These sites are noted in the illustrative plan as "capacity" sites. As the need for these sites arises in the distant future, the principles outlined here should be applied in making an appropriate choice for future use.

Gathering Spots

The third principle guiding building use is locating places where interaction will occur among people in the various colleges and administrative units. This principle is intended to ensure that insular groups do not develop from the concentration of Colleges in specific locations. While not many gathering spots are needed to achieve this objective, it is important not to forget the need to create places, whether indoors or outdoors, that help foster a collegial environment.

Currently, the Memorial Union and the Library are the most significant gathering places on campus. In addition to this are many lecture halls, the Hub and recreation facilities where informal interaction occurs among people from different colleges and administrative units.

The Plan proposes to expand this pattern with several new facilities. An additional Dining Facility is needed and planned for the northern part of the core campus. Currently, this area has no dining facility and the distance to the Memorial Union is too far for frequent use. The new Dining Facility is planned along Pammel Drive to be located within a new building located across the street from the Metallurgy Building. In addition to general dining facilities, several private dining rooms should be included as part of this facility to allow for faculty meetings or small seminars to occur.

A new Classroom Building is planned for the east side of the core campus on the site of the former Landscape Architecture Building. As classrooms around the campus have been taken over for use as offices or computer rooms, the need has emerged for a new instruction building which could be used by all Colleges. When plans for this building proceed, the opportunity should not be missed to reflect its role as a gathering place in its design.

Lastly, but perhaps most important, the programs of many of the research buildings incorporated in this plan are based on the notion of shared research, or research "centers" in which scholars from several different disciplines collaborate on creative studies. This concept is intrinsic to research today and is made use of in the Plan as one of several ways of achieving a collaborative academic environment.
Form

Campus Entry

Currently it is difficult to find a primary, symbolic entry to the campus. The Master Plan addresses this by establishing a primary entry, strengthening a secondary entry and recommending a "way finding" system that will lead visitors who are unfamiliar with the campus to its front door.

As shown in Figure 22, the primary and symbolic entry will be focused around the Memorial Union. As most visitors arrive at the campus by automobile from Lincoln Way, it is important to not only lead them from Lincoln Way into campus, but also to provide a sense of arrival once on campus. The concept recommended in the Master Plan is that of bringing visitors to the front of the Union where it faces the Campanile as a way of indicating their arrival on campus and orienting them to the core of the University. This would be accomplished by leading the visitor from Lincoln Way to Knoll Road past the Knoll and around to the front of the Union where they can drive into the ramp, park and walk to their destination on campus. A westerly approach would lead from Lincoln Way to Welch Avenue where the driver would pass by Lake LaVerne, to the Union, and into the ramp. These two entry drives can be made obvious to visitors by signage along Lincoln Way and by new gates flanking each entry drive. The road which currently leads directly to the Union from Lincoln Way would be redesigned and restricted to a drop-off entry only.

Signs should also be posted along the route to campus beginning on Interstate 35 and leading to Highway 30, to Elwood Drive, to Lincoln Way and to the Union. Some signs already exist along this route. It is recommended that a coherent system of signs be developed that will make it easy for a first time visitor to find the front door of the Union where they can then be oriented to the whole campus. Other major destinations also should be indicated with signs including the Stadium and Iowa State Center.

Along this entry route from the interstate to the campus, the intersection of Elwood and Lincoln Way is significant. Clear directional signs will be important here to distinguish the Iowa State Center from the core campus area. Landscape improvements to this intersection will mark it at the beginning of the campus zone.

A frequently used secondary entry is that of Stange Road as it approaches the campus from the north. Since a significant amount of housing in Ames is located north of the campus, this entry is used daily by many faculty, staff and students. Enhancement of this route with trees lining both sides of the street is recommended. This will strengthen the spatial definition of the street and provide a more appealing pedestrian connection from the core campus to student housing and to any future research buildings or parking areas located north of the railroad tracks.

The Stange Road entry route should be terminated in a new circular
Figure 22: Proposed Campus Approaches

- Primary Campus Vehicle Entry
- ** Proposed Entry Gates
- Main Arrival Area
turnaround to be located in front of Lagomarcino Hall. Some parking spaces for visitors should also be located here. The current condition with the street partly closed for bicycle parking is confusing and non-functional. The bicycle parking area should be replaced with a lawn, creating a more gracious and appropriate entry to the campus.

Many other existing entries to the campus will continue as indicated in the illustrative plan. These are used on a daily basis by those who work and study at ISU and who know the campus well.

Campus Edges

While the perimeter of most parts of campus are fairly well-defined, additional tree planting is recommended to further define the edges of campus. Evenly spaced trees placed along streets at the boundaries of campus will bring clearer identity to the University and enhance its appearance. In the core campus, these streets include: Elwood Drive, Lincoln Way, Sheldon Avenue and Thirteenth Street.

New gates are recommended on Lincoln Way to formally announce the entrance to campus at Knoll Road and Welch Avenue. The existing brick and stone gate at Sheldon Avenue and Union Drive should remain even though this is a secondary entry.

Campus Open Space

The landscape of Iowa State University's campus is its most unifying and beautiful feature. Currently the campus is made up of a variety of scales of open spaces and differing landscape treatments in these spaces. Continued creation of diverse spaces is recommended ranging from large natural wooded areas to small courtyards. Specific landscape guidelines are given in the Design Guidelines section of this report. Described below are the types and locations of open spaces recommended (see Figure 23).

Natural Landscape

The largest scaled open spaces of the campus include those which surround it and are part of a larger natural system: Fumell Woods, Squaw Creek, College Creek, Clear Creek. These wooded areas are not only amenities for the University but for the entire Ames community. All should be preserved and maintained in their natural form. College Creek passes through the campus and pedestrian paths are located alongside parts of it. This provides a very appealing and contemplative alternative route through campus. Paths should be developed and extended where possible along its length.

Central Lawn

The single most important landscape feature of the campus is the 20 acre Central Lawn at the heart of the campus. It is this feature that the campus is most known for and that sets an image for the rest of the campus.
Figure 23: Proposed Open Space Structure

- Wooded Park
- Pedestrian Open Space System
- Street Corridor
- Pedestrian Open Space Corridor
- Court
- Quadrangle
Preservation of the Central Lawn and of the historic buildings which surround it is fundamental to the Master Plan. Its parklike landscape form allows for the existence of a variety of different spaces, experiences, and views all within one setting. Its informal structure distinguishes it in a setting largely designed on a grid. No buildings should be built on the Central Lawn and any built at its edges (such as the proposed addition to the Memorial Union or new Social Science Building) must be designed very carefully with sensitivity in the surrounding environmental character.

Quadrangles

To the west of the Central Lawn is the more recently created Library Quadrangle. Once the site of temporary buildings and parking lots, the quadrangle was created when these uses were removed. This quad is more regular in form and much smaller than the Central Lawn but is successful in providing a different scale of open space on campus that can be used in a variety of ways. While the buildings at the edge of the quad are aligned, they are not formally arranged and thus do not have axial entry locations or symmetrical design and, in fact, are not all entered from the quad. Because of what the landscape treatment should be similarly informal almost as an extension of the treatment of the Central Lawn.

A new North Quadrangle is proposed north of Pamphlet Drive which will be similar in scale to the Library Quad. This Quad will be formed mostly by proposed buildings but also partly formed by the northern facades of the Metcalf Development Building and Molecular Biology Building. While this land is currently used as surface parking, in the future the new North Quadrangle will be surrounded by new Engineering and Agriculture research buildings. Similar to the Library Quad, the North Quad will be significantly smaller than the Central Lawn, but it will provide much needed open space and a pleasant setting for future buildings. A consistent line of trees is recommended to frame the North Quad so that it can be created and function as a whole even as the surrounding buildings are phased over time. The Quad space itself is recommended as possible future location of the Horticulture Gardens.

Courtyards

Smaller courtyards also currently exist on the campus and the creation of more is recommended. The Agronomy courtyard and the Lagomarcino courtyard are examples of successful small existing open spaces. Future courtyards indicated in the Plan include a courtyard surrounding the Marion Water Tower, a new Arts and Sciences courtyard between Pamphlet and Otten in the block east of Bissell Road, and several new courtyards in the area north of the rail tracks once it is developed for research use. The character of each of these spaces can and will differ depending on the needs and desires of those that will use them. All of them, however, should be treated as planted not paved spaces.
Athletic and Recreation Fields

Athletic and recreation fields are not only important for the use they provide but are also important as open space features. Athletic field space is a clear indicator to an uninitiated visitor that an academic use is nearby. Currently, the fields along Elwood Drive and those at the intersection of Elwood and Lincoln Way provide the first indication of the campus. The importance of field space for programed uses (classes, intramurals, etc.) is equal to the importance of buildings as programmed space. Maintaining the proximity of fields to academic and residential areas of the campus is also important. In keeping with this, the former Stadium site at the corner of Lincoln Way and Sheldon Avenue should remain as field space, as should the field space at the intersection of Lincoln Way and Elwood Drive.

Pedestrian Links

The treatment of pedestrian links as landscaped spaces is an important recommendation of this Master Plan. These links are seen not only as valuable routes of movement, but also as extensions of landscaped spaces from the center of campus out to the periphery. Currently, most of the pathways that are not associated with streets are located in the central area of the campus. The Plan proposes the extension of several pedestrian-only routes beyond the central area. Most importantly, a new north-south link is proposed as a northern extension of Morrill Road, although the new extension would be used only by pedestrians. Currently, there are many east-west routes for pedestrians but very few north-south. The Morrill Road extension would require the demolition of the Office and Lab building which links Gilman and Physics Hall and would connect the future research area north of Pannell Road to the General Lawn. No service areas or loading docks should be allowed on this corridor. It should be a tree-lined and canopy pedestrian walk linking building entries and major streets. A future building should be located at the northern end of this link to visually terminate the axis. When development occurs north of the tracks, this pedestrian route should ideally be extended northward under the tracks to provide a direct link from one side of the tracks to the other. The extension under the tracks should be designed for vehicular passage as well as pedestrian. This will make the research area to the north much less isolated than it would be if Stenge Road provided the only connection.

An additional key recommendation of the Master Plan is the creation of improved pedestrian access to the campus from the residence halls located north of Lincoln Way. Friley Hall is located just west of the Central Lawn separated from the academic area of campus by Union Drive. To the east of the Central Lawn is Carrie Lane Court, Richardson Court, Oak, Elm, and the Maple/Willow/Larch housing complex. All of these residence halls are separated from the academic core by Knox Road. Partial closures of Union Drive and Knox Road are recommended in the Master Plan in order to provide a better and safer connection to the campus for students and to place greater importance on the campus as a

60
place for pedestrians rather than as a place for cars. Union Drive would be closed to vehicles as it passes to the south of the Student Service building. Access would remain to the Alumni Hall parking lot. Knoll Road would be closed along the edge of Parking Lot 50. Access to Lot 50 would be maintained from the northern end of the Lot.

A third important pedestrian route recommended in the Master Plan is another north-south route. This corridor starts at the Student Services building and extends northward along the western facades of Pearson, Marston, Durham Center, Atanasoff and Snodgrass Halls. It would then extend further north into the proposed Arts and Sciences Quad and then past Pammel Drive to the new North Quad. Like the Morrill Road extension, this route will provide a much needed north-south link from the existing core campus to the future research areas. It should be designed as a tree-lined alley with no service entries or loading docks located along its length.

Several additional pedestrian routes are illustrated in the Master Plan which are enhancements of existing routes. One of these is the pedestrian/bicycle route which extends from the City of Ames from the east and runs along the northern edge of the Recreation/Athletic building, the Physical Education building, and the Dairy Industry building leading into the Central Lawn. A second route is located on the west side of campus and extends to the east from Sheldon Avenue along the northern edge of the tennis courts past Bissell Road and ends near the Warren Water Tower. Enhancement of both of these routes with trees and appropriate paving and lights is recommended.

Streets

Finally, the Master Plan recommends thoughtful treatment of streets as open spaces. Where possible, the continuous nature of streets should be emphasized with continuous tree plantings. This is ideal not only on streets that mark the edges of the campus, such as Elwood Drive, Thirteenth Street, and Sheldon Avenue, but also on streets that pass through the campus such as Pammel Drive, Osborn Drive, Wallace Road, Union Drive, and Bissell Road. Morrill Road, however, should not be tree lined along the stretch that passes through the Central Lawn since the larger landscape of the Lawn should predominate. Similarly, the portion of Lincoln Way that passes in front of Lake LaVerne and the Memorial Union should not be consistently tree lined, rather the landscape of this stretch should be part of the larger naturalistic landscape surrounding the Lake and the Union.

Landmarks

None of the buildings proposed in the Master Plan will be of the same visual or symbolic significance of the most significant existing campus buildings such as Bardshear Hall, Curtiss Hall, the Memorial Union and the Campanile. Some new buildings, however, will be located in visually prominent locations and thus their design must be considered very
carefully. These include: the building of the northern end of the Morrill Road extension, the Social Science Building located in view at the entrance to the campus from Knoll Road, the proposed addition to the Memorial Union, and the Exhibition Hall to be added to the Scheffer Building. Also, the research buildings to be located along Stange Road will provide a first impression to the University to anyone entering from the north and should be designed accordingly.

Circulation

Vehicle Circulation

It is recommended that the existing pattern of campus streets be maintained while proposing modifications that would clarify public entry to the campus, enhance pedestrian movement toward the Central Lawn from campus edges, and accommodate new programs (see Figure 24). The closure of Union Drive between Bissett and Welch, and between Knoll and Wallace, along with the limiting of Morrill Road near Lincoln Way to a service cul-de-sac, emphasizes Welch and Knoll Roads as the primary entries to a new vehicular loop off Lincoln Way. Within the entry loop are significant campus features including the Knoll, College Creek and Lake LaVerne as well as access to Alumni Hall. The Memorial Union and fountains are the focus of this entry loop. With views to the Central Lawn and Campanile, and close proximity to visitor services, the Memorial Union is an appropriate orienting feature for campus visitors. The proposed closures of Union Drive also serve to enhance pedestrian movement between the Central Lawn and the Helen/Varley residences and the Richardson Court/Carrie Lane Court residences, by eliminating significant pedestrian vehicular conflicts and by simplifying congested intersections.

It is also recommended that the entire length of Cobborn Drive, and Bissett Road be limited during the day to authorized traffic. This major change in status for Bissett Road extends the vehicle zone of campus to the west thus providing enhanced pedestrian movement toward the Central Lawn from existing and future program development west of Bissett Road. The plan also recommends a system of staffed control gates to be located at the north and south ends of Bissell Road and the east end of Cobborn Drive.

In order to provide access to significant new north campus development, the Master Plan proposes a north loop road off Pannell Drive. This road will provide direct access to extensive parking lots adjacent to the railroad track, the proposed parking deck and buildings framing the new quadrangle space north of Pannell Drive.

Minor modifications are proposed for the Morrill Road alignment adjacent to the Central Lawn. In an effort to remove inappropriate parallel parking sprang out along this section of Morrill Road, the plan proposes a slight change of alignment just east of Boardman Hall in order to incorporate a limited number of 90 degree parking spaces for selected staff and official visitors.

62
Pedestrian Circulation

The primary response of the Master Plan to pedestrian movement on campus is to address the lack of strong organization in the areas outside the Central Lawn and academic quadrangle. In this area, pedestrian movement currently conflicts with parking and service and generally lacks strong physical structure. The Master Plan proposes the creation of general, well-placed corridors to serve as primary pedestrian paths. These would be planted continuously with trees and shrubs and well-lighted for safe night time use. A series of new or upgraded open space quadrangles, courts and parks are proposed either along the pedestrian corridors or as culminating spaces (see Figure 25).

The most ambitious of the proposed corridors is one which extends northward from Merrill Road connecting the Central Lawn to the new quadrangle north of Pammett Drive. Creation of this pedestrian corridor requires the removal of the Office and Laboratory Buildings, and the reorientation of service access for Spedding, Wilhelm, Gilman and Physics Halls. Once implemented this corridor provides a previously lacking north/south campus connection. It will also link the south student services at Memorial Union to what is envisioned to be a north campus student services building located on the quadrangle, and culminating the pedestrian corridor. This corridor also serves as part of the open space link between Pammett Woods and College Creek. A second north/south connection is planned further west. This new corridor connects the College of Engineering zone to the new quadrangle north of Pammett Drive. A new court space between Pammett and Osborn would be located along this pedestrian way.

An east-west pedestrian corridor is proposed for west campus which would link the existing academic quadrangle with Stedson Avenue perimeter parking. This corridor is to be framed by the proposed Math and Computer Science Building, Center for Aircraft Systems Reliability, and Center for Innovative Teaching and Research, as well as by a new court space at the historic water tower, and a park space south of the College of Design.

On the east side of campus the Master Plan proposes a new pedestrian corridor which would incorporate the space between the Dairy building and Hamilton Hall and would extend east as a dual pedestrian/bicycle corridor connecting campus to Swasey Creek and the Sixth Street route toward downtown Ames. East campus pedestrian movement is further enhanced by strengthening the corridor between the Central Lawn and the Recreation building. The plan proposes an improved pedestrian link across Parking Lot 2 and an improved court space between Curtiss Hall, East Hall and the new Social Science building.
Figure 25. Proposed Pedestrian Circulation

- Primary pedestrian corridor
- Landscaped street/walk
- Gates
Service Circulation

The current campus core service pattern is one in which primary streets provide vehicular access to most service cul-de-sacs that are often efficiently shared by clusters of surrounding buildings. As the campus core density increases, it is recommended that this general pattern be maintained. The Master Plan inventory phase, however, has identified problems within the Bissell, Pammel, Wallace, Union loop in which building density is such that service areas conflict with pedestrian and bicycle movement. Often service and pedestrian movements share the same space. In response to this, the Master Plan recommends modifications in which service is provided to new buildings, or reorganized for existing buildings, to allow complete separation from pedestrian corridors and spaces. The ideal pattern would be one in which buildings are provided with a service side distinct from a pedestrian side.

In the proposed plan, primary campus streets retain their basic functions (see Figure 26). Pammel Drive is the dominant access street supplying access to service cul-de-sacs to its dense southern block and to the block to its north where significant development is proposed. Bissell, Osborn and Wallace provide access to service cul-de-sacs on their inward campus side. Morrill Road remains a minor service access street. Primary service modifications and additions include the following:

1. A new north loop road off Pammel Drive will provide vehicular access to service areas at the backside of buildings framing the new quadrangle space. This loop is a simple, efficient shape coinciding with the alignment of an existing street and service entry.

2. The service cul-de-sacs shared by Spedding, Gilman, Wilhelm, and Physics Halls will be relocated. Creation of a new pedestrian corridor will require that service for these buildings occur on their opposite sides: Spedding and Gilman from the west and Wilhelm and Physics from the east.

3. Service patterns in the area of the existing Armory and Agricultural Engineering building will be completely reorganized with the relocation of these functions, and the phasing in of six new buildings and a pedestrian corridor and courtyard space between. Service for these new structures will occur off of Bissell and Pammel in a pattern which allows separation from pedestrian functions.

4. Service patterns at the College of Engineering area will be reorganized to accommodate two new buildings inside of Bissell Road. The new Math and Computer Service building will share service with Sweney Hall and its addition, and the new Center for Innovative Teaching and Research will share service with Black Engineering. This service organization accommodates a new east/west pedestrian corridor.

5. The Master Plan recommends a simplification of the service patterns around Memorial Union. Morrill Road will become a service
cul-de-sac rather than a through street to Union Drive as is its current formation. And the south side service area of Memorial Union will be limited to a single access point off of Lincoln Way located at the intersection of Lincoln Way and Morrill Road.

6. On the east side of the core campus, the Master Plan recommends a new controlled access drop-off to the Farmhouse, via Osborn Drive. This vehicle route will then continue southward as a dual service cul-de-sac/pedestrian corridor to provide service access to the south sides of Curtiss Hall, Ross Hall and the proposed Social Science building.

7. The Master Plan recommends the railroad spur to the heating plant be reopened to allow train load delivery of coal and consequent reduction in coal hauling truck traffic on campus streets. The plan further recommends that all coal hauling truck traffic enter the heating plant area only from the north, eliminating coal truck traffic from Wallace Road. This recommendation is consistent with the planned expansion of heating plant facilities northward across Sixth Street.

Bicycle Circulation

There is logic to the pattern of bicycle movement and parking on campus as identified in the Existing Conditions Chapter of this report. The strength of the existing pattern is its hierarchy. There are city streets identified as bike routes which essentially surround campus and feed the campus street network. From observation it appears that all campus streets are then eligible for bicycle use. Bicycle traffic from campus streets in turn filters, via secondary roads and paths, to a concentrated zone of bicycle parking that generally surrounds the Library Quadrangle and Central Lawn.

While there is a pattern to the existing system, there are problems due to an insufficient degree of structure and consistency in its application. These campus streets and paths intended for bicycle use are not consistently designated, thereby giving the impression that all streets and paths are eligible for use. This is especially evident within the Bissell, Pammel, Wallace, Union loop where density increases and people and vehicles vie for routes. Another problem is the lack of a sufficient east/west bicycle route through the central core campus prompting bicycles to use the Central Lawn paths. The campus also lacks sufficient north/south routes especially through the block between Pammel and Osborn Drives.

Complicating the above problems is the variety of bicycle parking facilities ranging from a few large central lots to numerous small racks sized often directly adjacent to doorways. Railings and trees are frequently used for parking in impromptu fashion. The Master Plan proposes strengthening the system by identifying a pattern of evenly distributed campus streets for bicycle use. The goal is to supply a network that is extensive enough for convenient movement, with parking facilities at needed locations.
The plan proposes an approximate grid pattern of streets and paths to be designated for bicycle use (see Figure 27). These include all the primary streets with the exception of Sixth Street on campus. To complete the grid pattern the new north/south Morrill pedestrian corridor is designated for bicycle use, as is the new east/west pedestrian corridor from Engineering to Sheldon Avenue. The plan also proposes that an east/west route traverse the entire central section of the campus core extending from Elwood Drive and Sixth Street on the east to Sheldon Avenue at Beyer Hall on the west. This east/west route includes the critical Central Lawn section for which the Master Plan proposes a route exclusively for bicycles which is sited with maximum sensitivity for existing grades, plant material, and pedestrian paths. Included in the street network is the new loop road north of Pammel Drive and an east/west connection from this to Stange Road. All routes shall have consistent designations. The plan recommends as well that routes be located on street when possible rather than on adjacent sidewalks.

The Master Plan also designates areas for concentratred bicycle parking lots. The designated zones run parallel to particular streets at a constant depth. The pattern of parking zones border high activity, predominantly pedestrian areas. Zones along Russell, Osborn and the old Kroll Road extension circle the Library Quadrangle and Central Lawn areas. Zones along Pammel Road and the new north loop road service the proposed development to occur north of Pammel Road. Zones along Pammel and Osborn Roads, as well, accommodate the activity in the block between these streets.

Finally, the plan recommends that the entire system be implemented with consistency. Design guidelines should standardize route widths, the siting and planting of parking areas and all related site furnishings such as racks, signage and lighting. Consistency will be critical to communication of the system to students and its use within the rules.

Transit Circulation

As noted in the Chapter II, the Iowa State campus is the largest single generator of trips made on the city transit system known as Cy-Ride. Six of seven fixed routes service the campus core area. Cy-Ride is an integral component in the transportation of students, faculty and public to and within campus. The Master Plan proposes modifications which impact Cy-Ride in two ways. The first impact is physical. Proposed road closures will require that parts of some fixed routes be altered. The second impact involves policy. In keeping with the goals of the Master Plan Committee, the plan proposes a significant amount of structured parking to be located in three new parking decks. One continuing question during the planning process was what impact Cy-Ride might have on reducing need for structured parking should such structures become cost prohibitive.

The Master Plan proposal for road closures affects Cy-Ride routes one, three, four and six (see Proposed Transit Circulation). The closure of Union Drive between Russell and Welch affects routes one and three. As proposed, route one would be required to enter campus from and exit

69
Proposed road closures will affect certain Cy-Ride routes in the vicinity of Beyer Hall

campus back to Lincoln Way using only Sheldon Avenue. To maintain the function of the key transfer point near Beyer Hall, design modifications are proposed which would allow the route one bus to turn around using the parking area west of Beyer. Similarly, route three would be required to use Lincoln Way, Sheldon and Union to connect to Bissell Road. Routes four and six are affected by the closure of Union Drive between Knoll and Wallace. Currently both routes use Union, Wallace, Osborn and Morrill as a one-way campus access circle allowing the bus to turn around and retrace its route. The proposed modifications will require that these routes use the following sequence as a substitute circle: Union, Knoll, Lincoln Way, Wallace, Osborn and Morrill. The plan also proposes that additional bus service be provided on the north side of the new quadrangle development north of Pammel Road (see Figure 29).

Cy-Ride impact on future parking policy will be critical. The Master Plan has proposed structured parking on the campus core as a method of accommodating future development. However, the plan recognizes the possibility for cost being a barrier to the construction of parking decks. In this event, the plan recommends that Cy-Ride be made time competitive with commuting by car so as to reduce in-core parking need. The plan recognizes that strong policy rules have been made in the past regarding parking eligibility. Similarly strong policy guidelines may be required in the future to promote greater Cy-Ride use.

Parking

Currently, there are 4,725 non-residential parking spaces within the core area. The Master Plan recommends that parking be supplied at an overall rate equal to the existing ratio of 87 parking spaces per 1,000 gross square feet of non-residential building space, and that parking be located at the perimeter of the core campus and not create a barrier between instructional and research facilities. Perimeter parking reduces pedestrian/automobile conflict and reserves the use of land in the center of campus for building expansion, courtyards and campus open space.

The proposed parking plan is a function of long term growth and displacement on the campus. New parking should be staged according to improvements within the core area. As shown in Figure 29, the Plan proposes a series of new large perimeter surface lots west of Bissell Road and north of Pammel Drive. As perimeter surface parking is developed, it is critical that they be lighted and equipped with emergency phones. A number of new and existing small close-in lots should remain for use by administrative heads, deans, visitors, the disabled and short-term deliveries.

In order to meet the long-term parking demand in the core area at the current rate, the plan recommends sites for new parking structures. The use of parking structures is proposed as part of a broader objective to move parking from the academic and research use areas to the perimeter of the campus. Parking decks are recommended as a land-conserving, land use strategy necessary for University expansion. Without parking
Figure 29. Proposed Non-residential Parking Distribution

- Existing Parking
- Proposed Parking
- Parking Garage
- 5-minute Walk from Parking Garage
decks, land requirements for surface parking would be 12-15 acres. Decks can also enhance the campus image by reducing the visibility of parked cars.

A total of three new parking garages are proposed. A 675-car west campus parking structure is proposed on Sheldon Avenue adjacent to the College of Design building. A second 780-car north campus deck is proposed of Stange Road immediately north of Industrial Education B. Finally, a 600-car east campus deck is proposed on Wallace Road on the site of the existing physical education tennis courts. These three locations are recommended because of their distribution to various zones of the campus, making them useful to a broad number of parking users. As shown in Figure 25, all three garages are located within a 5-7 minute walk of the academic core.

Alternatively, additional surface parking for 1600 cars would need to be developed in peripheral locations requiring frequent shuttle service to the core campus. The parking lot at the Iowa State Center could be utilized during the daytime by faculty, staff, students and visitors driving to the campus from origins generally south of Lincoln Way. A new surface lot north of the railroad tracks in the Pammel Courtyard would accommodate parkers driving to the campus from origins generally north of 13th Street. Both the Iowa State Center Lot and the Pammel Court Lot would require frequent shuttle service to and from the core campus, making this approach a viable alternative to the parking structures recommended in the master plan.

The combination of surface and structured parking should be more than adequate to accommodate night parking demands for primary evening use buildings which include the Library, the College of Design, Music Hall and Lagomarcino Hall. The plan proposes that parking along one side of Onslow Drive be permitted in the evening. A total of approximately 900 evening spaces are located within a 5 minute walk of the Library. An additional 1,200 spaces are within a 6 minute walk of the Library.

Infrastructure

Proposed new building locations and plan modifications do not present any major conflicts to existing or proposed utilities. The plan respects the existing street pattern as well as all major utility lines which are not under streets.

New research programs on the western part of campus will necessitate the construction of a new chiller plant north of the Town Engineering building. The chiller will be required for summer operation only in order to meet peak demands.

The Master Plan endorses the University's long range plan for expansion and improvements of the heating plant by relocating the Horticulture Gardens to the new Quadrangle north of Pammel Drive and reserving the
area north of Sixth Street for future heating plant expansion. Key elements of the University's 20-Year Utility Plan include:

1992

- Construction of a 69 kV substation north of the heating plant to improve connections to the City electrical system.
- Construction of a new entrance into the coal storage yard to better accommodate truck traffic.

1994

- Construction of a new 15 megawatt steam turbine and additional cooling tower north of Sixth Street in order to meet increased demands for electricity.
- Construction of a new cooling tower bay on the east side of the existing cooling tower in order to meet increased chilled water loads.
- Replacement of fly ash and bottom ash silos.
- Reconstruction of the coal handling area in order to allow rail delivery of coal, thereby eliminating truck traffic.

2000

- Provision of a new gas-fired boiler to replace two existing boilers which will be beyond their useful life.

2010

- Provision of a coal fired boiler directly north of the existing circulating fluidized bed boilers to replace units which will be retired. This project also entails construction of a new water treatment plant west of the new cooling tower site and relocation of the existing water storage tank. The transformer yard north of the heating plant will be relocated into the substation area.

Building Demolition

As the Master Plan is developed over time, a number of obsolete buildings are expected to be demolished to create space for new construction. These buildings will not all be removed at one time, but will be phased according to project priority. Candidates for demolition are shown in Figure 30 and listed in Table 3.

75
## Table 3. Building Demolition

### Demolition Within Core Campus:

<table>
<thead>
<tr>
<th>Building</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Engineering Machine Shed</td>
<td>5,696</td>
</tr>
<tr>
<td>Armory</td>
<td>89,563</td>
</tr>
<tr>
<td>*Botany Hall Annex</td>
<td>23,000</td>
</tr>
<tr>
<td>Chick Isolation</td>
<td>3,011</td>
</tr>
<tr>
<td>Davidson Hall and Industrial Education</td>
<td>51,459</td>
</tr>
<tr>
<td>DOE Construction</td>
<td>4,320</td>
</tr>
<tr>
<td>DOE Maintenance</td>
<td>7,503</td>
</tr>
<tr>
<td>DOE Mechanical</td>
<td>8,540</td>
</tr>
<tr>
<td>DOE Shop</td>
<td>4,998</td>
</tr>
<tr>
<td>DOE Warehouse</td>
<td>8,160</td>
</tr>
<tr>
<td>*Engineering Annex</td>
<td>44,903</td>
</tr>
<tr>
<td>Engineering Research Inst.</td>
<td>26,141</td>
</tr>
<tr>
<td>Exhibit Hall</td>
<td>17,693</td>
</tr>
<tr>
<td>Genetics</td>
<td>15,822</td>
</tr>
<tr>
<td>Genetics Storage</td>
<td>1,035</td>
</tr>
<tr>
<td>Insectary &amp; Greenhouse</td>
<td>18,944</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>11,582</td>
</tr>
<tr>
<td>Library Storage</td>
<td>10,812</td>
</tr>
<tr>
<td>Military Garage</td>
<td>1,192</td>
</tr>
<tr>
<td>*Morrill Hall</td>
<td>24,884</td>
</tr>
<tr>
<td>Nuclear Engineering Lab</td>
<td>16,613</td>
</tr>
<tr>
<td>Office and Laboratory</td>
<td>29,102</td>
</tr>
<tr>
<td>Old Meats Laboratory</td>
<td>14,237</td>
</tr>
<tr>
<td>Poultry Lab</td>
<td>1,010</td>
</tr>
<tr>
<td>Printing &amp; Publications</td>
<td>30,096</td>
</tr>
<tr>
<td>Purchasing Warehouse</td>
<td>7,049</td>
</tr>
<tr>
<td>Ruminant Nutrition Lab</td>
<td>8,870</td>
</tr>
<tr>
<td>Veterinary Obstetrics</td>
<td>7,795</td>
</tr>
<tr>
<td>Veterinary Surgery</td>
<td>6,656</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>500,686</td>
</tr>
</tbody>
</table>

### Demolition North of Rail Tracks:

<table>
<thead>
<tr>
<th>Building</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pamnel Court</td>
<td>201,661</td>
</tr>
<tr>
<td><strong>Total Demolition</strong></td>
<td><strong>702,347</strong></td>
</tr>
</tbody>
</table>

*May be retained and renovated*
Phasing

No specific phasing is required in the Master Plan. Some building programs are included in the University’s Ten Year Capital Request list, however, and are therefore most likely to be built first. These are shown in Figure 31 and listed below:

- Intensive Livestock Research Facility
- Center for Innovative Teaching and Research
- Agricultural Engineering
- Mathematical and Computer Sciences Building
- Instruction Building
- Addition to College of Design
- Library/Museum Storage

The Plan is designed to be flexible enough to accommodate any sequence of construction, but in some instances careful planning will be needed to ensure relocation of uses prior to demolition and construction. For example, demolition of the Office and Lab Building should precede expansion of facilities north of Pammel Drive so that adequate pedestrian access is established. Similarly, the relocation of parking spaces must precede any construction on land currently used as parking.
Buildings included in the University’s Ten Year Capital Requests List

1. Invasive Livestock Research Facility
2. Invasive Livestock Research Facility
3. Center for Innovative Teaching and Research
4. Agricultural Engineering
5. Mathematical and Computer Sciences Building
6. Instruction Building
7. Addition to College of Design
8. Library/Museum Storage
V. DESIGN GUIDELINES

Building Design Guidelines

The goal of writing design guidelines is to establish general parameters for future buildings that will help create a coherent and attractive campus. The goal is not to exert excessive control over future designers. Thus, the following guidelines are offered as principles, not as prescriptions.

Building Style and Materials

Many building styles currently exist on campus. The most notable, landmark buildings (Beardshear, Curtiss, Memorial Union) are older classical buildings, while many others are more utilitarian in design. Styles of housing are equally diverse ranging from Georgian to Modern. The Master Plan does not advocate a certain style for the campus but rather advocates a goal of designing buildings to reflect their purpose, their location on campus, and the public role of the University.

Buildings should be made of durable materials and not of temporary or shoddy materials. Materials most in keeping with the campus are brick, stone and concrete.

Buildings with an everyday use (classrooms, research labs) should be relatively straightforward in their design with good proportions, visible paces of entry, and well-crafted expression of human scaled elements such as windows, doors, door frames, steps, ramps and rail. Glass should not be reflective or smoked but should allow observation of activity inside the building.

Buildings that serve a larger public purpose should be more stately and should use more refined materials and detailing. This also applies to buildings located in highly visible locations. Prominent and/or public buildings will include the Exhibition Hall to be added to the Schurein Building, the addition to the Memorial Union, the Social Sciences building, and the building located at the end of the Morrill Road extension.

All buildings should reflect elements of a base, shaft, and cornice. Sloping roofs, where appropriate are encouraged, but roof forms should not dominate the building. Pedestrian entries should always be clearly visible, especially in the more public buildings. Service areas of buildings should be separate from pedestrian areas and should not be located on public ways. Building heights should not exceed three to four stories. This goal is intended to maintain a campus scale appropriate to its mid-Iowa location. Also it is important that Beardshear and Curtiss Halls as well as the Campanile, Water Tower, and Memorial Union are not dominated by other structures. The amount of growth anticipated over time can be accommodated within the campus at this approximate height.
Building Locations

Recommended future building locations are illustrated in Figure 20. The principles guiding the choices of location are described below. Most importantly, no new buildings should be located on the Central Lawn. As the most memorable space on campus, and as one of the most unusual park-like settings on any campus in the country, the Central Lawn must be preserved and maintained as open space.

Also, building siting and design must take into account the open space configuration that results from the building massing. Buildings should not be sited such that they leave remnants, unusable open space. The intention is not that every open space must have a use, but rather that buildings should be designed with consideration of their role as part of the whole fabric of the campus. It must be recognized that building walls often frame the edge of a courtyard or pathway and that these elements have equal importance in creating a desirable and functional campus setting.

As shown in Figure 32, buildings located along grid streets should be set back from the street at relatively uniform distances. The intention is to create coherent street corridors that are visually unified. The pattern recommended in the plan is that of trees lining the edges of streets with lawns located between the tree line and the building entry wall. This pattern is recommended for new buildings to be located on Bissell Road, Osborn Drive, Pammel Drive, and Stange Road.

Parking Structures

The design of parking structures must be sensitive to scale and form so as to not detract from the campus image. The Memorial Union Parking Ramp, for example, is well designed and has established a good precedent for ramp design on the campus. Part of the success of the Union Ramp is its wooded and sloping site where a good portion of the length of the structure is obscured from view. Future ramps are not likely to enjoy the luxury of slopes and existing trees to obscure them. Because of this, careful attention must be paid to their design.

Ideally, a structural form where changes in level are achieved through the sloping of whole floor should not be used. In these cases the building facade also slopes, creating a powerful image that may be too strong for this campus. Changes in level should be achieved by ramps located at the ends of the building or obscured within the building.

Consideration should also be given to non-continuous horizontal openings at each garage level. While these can be designed well, punched openings whether square, rectangular or arched, achieve an appearance that is closer to the scale of the surrounding inhabited buildings. Punched openings are therefore preferred over continuous horizontal openings.

Potentially one of the most detracting features of parking structures is the
liveliness of the ground floor. As perceived by the passing pedestrian, decks offer little or no visual interest and can often seem unsafe. Ideally, uses should be placed in the front portions of the structure that are most frequently passed by. This does not mean that the entire first floor of a deck should be occupied by a programmed use, only that any portion bordering a well-traveled pedestrian way should be considered for alternative use. Potential uses include offices, classrooms, and support services - especially services that rely on automobile access such as photographic and media services.

Site Guidelines

Campus Planting

Woody plants, including trees and shrubs, are extremely important in defining the basic form of the campus. They establish the visual limits of campus spaces and their size, shape, color, texture and composition strongly influence the character of the landscape. Campus plants shape one's perception of fundamental visual phenomena such as unity, sequence and scale, and play a dominant role in creating mood. One needs only to imagine the campus without plants to realize their importance in forming an image of Iowa State. The grace and serenity that mature trees bring to the campus are tangible qualities that should be perpetuated and enhanced.

The Master Plan recommends that several broad principles and a number of specific guidelines related to campus plantings be adopted.

General Principles:

• Campus plantings should be appropriate to the scale of the university setting. Use of plants in large masses and rows is preferable to small scale plantings. The fundamental conception of the campus planting design should be to create a sense of simplicity, restraint and serenity.

• Plantings should subscribe to a palette of plants that is suited to the extremes of the regional climate, the rigors of human impact on a pedestrian campus and that are visually compatible with the local indigenous flora. Use of exotic plants with unusual foliage color or form is discouraged.

• Plantings should play a central role in creating the order and character of the campus. Plans should be composed with an understanding that they are a fundamental ordering element in defining and linking campus spaces. This view is distinct from the attitude that sees plants as added decoration.
Specific Guidelines

The following guidelines are organized by campus landscape zones that correspond to the general landscape units of the campus. These zones include: open lawn parks (the Central Lawn and Quads), wooded parks, major pedestrian corridors, small courtyards and quadrangles, street corridors and parking lots.

Open Lawn Parks

The Central Lawn

It is recommended that the Central Lawn area be identified as a no-build zone, and that plantings be enhanced in a way that is consistent with its historic design. Consistency of approach is more important than historic replication, since the latter is nearly impossible to define and achieve.

The pattern of tree plantings in the lawn should be informal and naturalistic to maintain the irregular pattern of spaces. Such a pattern prevents one from seeing the great lawns in its entirety from any one point and fosters compositional interest.

Tree plantings should be primarily composed around the Central Lawn to enclose it, while some single trees and one groups should form islands in the open lawn. The enclosure should continue to be modeled into a series of irregular bays and promenades. Trees in the bays can be somewhat smaller than those in the promontories, and should be of types that lend themselves to massing. The bays should be planted with trees of interesting and generally uniform color and texture such as oaks and maples. Promontories and islands should typically be planted with trees that are large and heavy in mass to frame the bays. They can be trees with strong individual shape, texture or color such as conifers.

Tree plantings should consist primarily of large trees, although limited use of small understory flowering trees and large shrubs in the bays is encouraged.

Tree plantings should generally be in substantial groups of the same species, or of species with compatible form characteristics. Tree plantings with too much variety of size, color, form and texture will appear restless and detract from the campus design.

The large open lawn areas should remain open so that the sense of expansive space and serenity is preserved. Island plantings should not become so extensive as to compartmentalize the lawn into a series of smaller lawns. The position and number of islands should be carefully maintained to preserve the large singular quality of the central space.

Buildings around the edges of the Central Lawn should be maintained as visually subordinate to the landscape. Only the Campanile and the front facades of Old Botany, Beardshear Hall, and Curtiss Hall should be
allowed to be visually prominent on the Central Lawn. All other buildings should be screened with tree plantings. A large tree grove should be planted at the west end of Ross Hall.

The Quadrangles

Planting of the quadrangle west of Beardmore Hall (the Engineering Quadrangle) and the new North Quadrangle should consist of large trees in informal groups along the edges and ends of the spaces and smaller trees and flowering shrubs between the sidewalks and buildings. A strong line of large trees along the outside of the North Quadrangle is recommended as a unifying device. Symmetrical framing of doorways with ornamental trees or large shrubs is a practice that should continue. The North Quadrangle is proposed as the site for the relocated Horticulture Garden. See Figure 33.

Wooded Parks

Wooded parks along College Creek and Clear Creek should be maintained as informal naturalistic areas where the tree canopy is dominant and open lawn areas are subordinate. Lawns will be somewhat more prominent in the area immediately around the Memorial Union, Lake LaVene, the Knoll and the relatively level areas southeast of Pammel Woods. Planting in the wooded parks should consist of native and indigenous trees and shrubs, planted in a random woodland pattern.

Major Pedestrian Corridors

Major pedestrian corridors serve as the primary organizing lines of the campus, linking use areas and open spaces. The corridors serve the essential role of unifying the campus. Their design should, therefore, be simple, coherent and expressive of their function as movement spaces. See Figure 34.

Various corridor segments, such as the Morrill axis from Morrill Hall to the North Quad, should be designed as single landscape units to insure their strength and continuity. A tree colonnade or informal massings of a single species for a given corridor would be appropriate. Too much diversity within a corridor will tend to undermine the sense of spatial continuity that is required. Variation of planting from corridor to corridor is encouraged. A strong thematic approach for each corridor could be developed around tree species: The Crabapple Mall; The Oakwalk; etc. The idea of corridor unity should also extend to the shrub layer, and ideally would build from existing plantings. A mall with a viburnum, honeysuckle, or amelanchier theme would create the kind of continuity and identity that is required for the pedestrian corridors.

Small Courtyards

Small courtyards created by the close sitting of buildings add intimacy and richness of detail to the campus landscape. Buildings that frame these spaces should open into them. Facades should be sufficiently transparent,
Figure 34.
Typical Pedestrian Corridor
particularly at the ground floor, to allow the court to be seen from within
the building. The courts should be dominantly planted and gardenesque
rather than paved. Sculpture and water features fountains should be
employed to enrich these spaces.

Street Corridors and Campus Gates

Similar to pedestrian corridors, street corridors should be designed as
simple, coherent landscape units that emphasize continuity and connect-

tivity. Streets should be lined with trees to create an overhead canopy for
pedestrians along the sidewalks. This can be done with formal tree rows
when possible, or with informal plantings. The number of tree types used
within a given street corridor should be limited in order to foster visual
unity. Where trees are used formally in flanking rows, a single species
should be used within a corridor. Variation of species to avoid extensive
monocultures in formal plantings should be accomplished at logical
breaks between spatial units.

Parking Lots

Parking lots should be designed to allow for tree and shrub plantings
around the perimeter of the lots for screening and for tree planting in
medians or islands within the lot.

Walks and Bicycle Paths

Campus walkways should be constructed of cement concrete and be sized
to accommodate pedestrian flows and service vehicles. A minimum walk
width of eight feet should be employed except for minor low use walks
which may be five or six feet wide.

Bicycle paths should be a minimum of six feet wide for two way traffic
and four feet wide for one way traffic. Walks and bicycle paths should
generally follow the contour of the land to make them appear integrated
with the landscape, particularly in the park lawn areas where the smooth
uninterrupted contour of the lawns is important to preserve.

Campus Lighting

In general the basic standards that now govern campus lighting of paths,
streets and parking areas should be perpetuated. The present standards
stipulate uniform types of light source, poles, fixtures and spacing.
Attention should be given to maintaining the practice of making lighting
as non-obtrusive as possible while maintaining light levels and light
uniformity conducive to safety and security. The pattern of light poles and
fixtures should not, for example, be allowed to contradict the organization
of campus spaces, but rather should reinforce that organization. On the
Central Lawn and quadrangles, lights should be located along the perim-
eters of the spaces, emphasizing the form of the space. Along streets and
paths the lights should reinforce the line of movement to create a clear
sense of direction.
Lights in courtyards and at buildings entrances, sculpture displays, or fountains should, wherever possible, be incandescent. This will create good color rendition and foster a hospitable, attractive night setting.

**Gateways**

New major campus gateways are proposed at Lincoln Way and Knoll Road and Lincoln Way and Welch. These two gates should be developed as significant landmarks, including appropriate landscaping, lighting, signage and architectural elements. They should be of a stature similar or larger than the west gates, since these will be the symbolic front door to the University.

Landscape and signage improvements should be made at the intersection of Lincoln Way and Elwood Drive in order to direct visitors to the main campus entrances and to enhance the sense of arrival at the threshold of the University.

**Sculture and Fountains**

The enrichment of the campus through the addition of outdoor sculpture and fountains should be a constant goal of the University. Such works, however, should be carefully selected and located to maintain a high quality standard. The following principles should be followed:

- Sculpture and fountains should be of the highest quality and reflect the stature of the University. Works should be those with universal qualities that will endure, rather than those with limited stylistic or trendy appeal.
- The University is a long-lived entity and the works of art that grace the campus should embody this character.
- Fountains and sculptural elements should be integrated with their surroundings, rather than simply placed in a convenient spot as is too commonly done with modern art at institutions. The sculpture in the Agronomy courtyard and the Memorial Union fountain are good examples of integrated art that should be emulated. Conversely, the monumental metal sculpture behind Curtis Hall and another near Black Engineering lack a sense of deliberateness and appropriateness in their siting.
- Sculpture and fountains should be used in smaller campus spaces and courtyards where they can be enjoyed in a controlled setting. Sculpture should not be permitted in the large quadrangles or open Central Lawn area. To add sculpture to these spaces would inappropriately shift focus away from the building facades that surround them and negatively alter the simple open character of the lawns. The trees that compose the Great Lawn spaces are of sufficient interest in themselves to obviate the need for sculptural works.
Signage

Campus exterior signage should be kept to an essential minimum to perform basic functions to inform, direct, and regulate. Too much signage could clutter the campus and detract from its visual quality.

The placement and designs of signs should be done to harmonize with the overall campus composition of buildings, walks, roads and plantings. Signs should be conceived of as background elements that are readily visible but do not draw unnecessary attention to themselves.

Basic sign groups such as building identification signs or directional signs should be consistent and designed as a system to create a unified visual effect, facilitate easy recognition and simplify maintenance.