TABLE OF CONTENTS
Foreword • Grinnell College .................................................. 1

Introduction and The Process ......................................... 2-5

I. Master Plan Framework ............................................... 7-21
   A. Core Values and Planning Options ............................. 7-9
      1. Strengthen Relationship to City of Grinnell ............... 8
      2. Enrollment ................................................. 8
      3. Academic Facilities ...................................... 8
      4. Campus Life ............................................... 9
      5. Athletics .................................................. 9
      6. Student Services ......................................... 9
      7. Campus Entrance .......................................... 9
   B. The Context — Campus and City ................................. 10-12
      1. The Region ................................................. 10
      2. The City of Grinnell ...................................... 10
      3. The Core Campus ......................................... 11
         • Illustrations
            - Land Use Analysis .................................... 12
            - Campus Building Use ............................... 12
   C. Observations ..................................................... 13-21
      1. General Issues .......................................... 13-14
         a. Interaction .......................................... 13
         b. Community ......................................... 13
         c. Approach to the Campus ............................ 13
         d. Experience .......................................... 13
         e. Student and Administrative Services .......... 14
      2. Land and Existing Facilities ................................ 14-21
         a. Land ................................................ 14
         b. Classrooms ......................................... 14
         c. Parking ............................................. 15
         d. Burling Library .................................... 15
         e. Forum ............................................. 16
         f. Physical Education Facility ....................... 16
         g. Darby ............................................... 16
         h. AR H/Carnegie ..................................... 16
         i. Herrick Chapel ...................................... 17
         j. Residence Halls .................................... 17
         k. Noyce Science Center ............................... 18
         l. Quad/Conrad Dining ............................... 18
         m. Bookstore ........................................ 19
         n. College Owned Houses ............................. 19
            • Illustration ....................................... 20
            o. Athletic Fields ..................................... 21
            p. Bucksbaum Center for the Arts ................. 21
            q. Conard Environmental Research Area .......... 21
            r. Glove Factory ..................................... 21
II. Planning Agenda • Program Needs ........................................ 22-24

III. Master Plan Recommendations ........................................ 25-84

A. Facility Recommendations .............................................. 25-40
   1. Sixth Avenue — “Entrance to
      Grinnell College” ........................................ 28-30
      a. Welcome Center .................................. 29
      b. Bookstore / Cafe ............................... 29
      c. Mears Cottage ................................. 29
      d. Main Hall ...................................... 29
      e. Streetscape Improvements ................. 29
      f. College Inn / Grinnell House ......... 30
      g. Burling Library .............................. 30
   2. Eighth Avenue — “Heart of
      Grinnell College” ................................... 30-35
      a. Alumni Recitation Hall/ Carnegie Hall .... 31
      b. Noyce Science Center Phase II ....... 31
      c. Campus Center .............................. 32
      d. Library ...................................... 32
      e. Forum ....................................... 33
      f. Student Housing ............................. 33
      g. Streetscape Improvements ............. 34
   3. Tenth Avenue ............................................. 35-36
      a. Athletic Center ................................ 35
      b. Harris Center / Cowles Dining ....... 36
      c. Streetscape Improvements ............. 36
   4. General Recommendations ....................................... 36-39
      a. Existing Classrooms ......................... 36
      b. Existing Residence Halls ................. 37
      c. Administrative and Business Offices .... 37
      d. Energy Center and Distribution ....... 37
      e. Facilities Management Building Site .. 37
      f. Campus Security .......................... 37
      g. Off Campus College-Owned Student Housing .... 38
      h. Off Campus College-Owned Faculty Housing ... 39
      i. Conard Environmental Research Area .......... 40

B. Architectural Guidelines ............................................. 41-43
   1. Architectural Styles .................................... 41
   2. Form ............................................. 42
   3. Scale ........................................... 42
   4. Organization ..................................... 42
   5. Materials ....................................... 42
   6. Windows ....................................... 43
   7. Roofs .......................................... 43
   8. Stairs and Ramps .................................. 43
   9. Doors and Entranceways ..................... 43
C. Landscape Recommendation and Guidelines ... 44-56
   1. Landscape Character .................. 44-45
      a. Perimeter .......................... 44
      b. Gateways, Entries and Focal Areas .... 44
      c. Large lawns and quads ................. 44
      d. Linear Spaces/Links ................ 45
      e. Building Entrances .................... 45
      f. Perennial and Annual Gardens ....... 45
      g. Prairies/ Meadows .................. 45
   2. Campus Vegetation ..................... 46-48
      a. Tree Management Plan ............... 46
      b. Planting Recommendations .......... 46
         1) trees
         2) plant beds
         3) flower beds
         4) lawn
   3. Landscape Systems ..................... 50-56
      a. Circulation ......................... 50
         1) vehicular circulation and parking
         2) emergency access
         3) service/utility access
         4) pedestrian pathways
      b. Campus Gathering Places/ Outdoor Space ................... 53
      c. Grading and Surface Drainage ....... 54
      d. Irrigation ............................ 54
      e. Maintenance .......................... 55
         1) management
         2) sustainable landscape management
         3) campus vegetation
         4) landscape systems
   4. Landscape Improvement Zones ........... 57-62
      • Landscape Improvement Zones Plan 57
         a. Prairie Walk ..................... 58
         b. Central Campus Green ............ 58
         c. North Quad ....................... 59
         d. Athletic Fields ................... 59
         e. Sixth Avenue ...................... 60
         f. Eighth Avenue ..................... 60
         g. Tenth Avenue ...................... 61
         h. Park Street ....................... 61
         i. East Street ......................... 61
         j. Tenth Avenue Parking Lots ........ 62
         k. Drop-off .......................... 62

D. Technology Recommendations and Guidelines .... 63-79
   1. Introduction .................................. 63
   2. Technology Goals .......................... 64
   3. Procurement Strategies .................. 67
   4. Recommendations .......................... 70
      a. Recommendation 1: Technology Umbrella .......... 70
b. Recommendation 2: Create a Technology Plan ............... 71

c. Recommendation 2.1: Technology Building .............................. 73

d. Recommendation 2.2: Technology Building Cabling ..................... 74

e. Recommendation 2.3: Technology Building Cabling ..................... 75

f. Recommendation 2.4: Technology Building Wireless Communications Systems ..................... 76

g. Recommendation 3.1: Technology Building Network ..................... 77

h. Recommendation 3.2: Technology Building Computer Systems ........ 78

i. Recommendation 3.3: Technology Building Computer Systems ........ 79

E. Sustainability, Energy and Infrastructure Recommendations and Guidelines ................................... 80-84

1. Sustainability Goals .......................................................... 80

2. Sustainability — The First Challenges ......................... 81

3. Energy Goals ................................................................. 82

4. Central Energy Distribution ........................................... 83

IV. The Campus Plan ................................................................. 85

V. Acknowledgements ............................................................... 86-87

VI. Appendix (in separate volume)

A. Planning Agenda • Program Needs Detail

B. Peer Schools

C. Existing Campus

D. Classroom Utilization

E. Residence Halls and College Owned Houses

F. Technology

G. Landscape • Catalogue of Site Details

H. Campus Plan Graphic Analysis

I. Appendix I • Sustainability Assessment ‘Score Cards’
We are pleased to present the Grinnell College Campus Master Plan (the "Plan") developed by the firms of Shepley Bulfinch Richardson and Abbott, Architects, in conjunction with Dober, Lidsky, Craig and Associates, Planners. The Plan is a bold response to a large set of needs and is based on a view of Grinnell that is stable but also changing. It reflects one of the goals that the quality of the College's physical facilities match those of its academic and campus life programs. Additionally, the Plan attempts to enhance the distinctive appearance and feel of Grinnell College and its setting in a lovely residential environment near to farm areas and wild prairie.

The Plan follows a detailed study of campus life and serious but unstructured discussions among students, faculty, and staff which have taken place over a number of years about what is needed to achieve our long-term, core objectives. The College has also endeavored to engage in a master plan process that invited campus groups to participate from the outset in the development of the Plan. From the very beginning, the architects and planners met with a cross section of campus students, faculty and staff to assess the College's needs. President Osgood and others consulted extensively with various College groups, including faculty, students, staff, alumni, and administrators and community members regarding the development of the Plan. This interaction has been critical to the success of this Plan.

As you know, the Plan is a campus framework for the future and does not obligate the College to construct any specific facility. It also inevitably relies on assumptions that may turn out to be wrong and can not fully anticipate the ever-changing environment of college life. Thus, further refinements and change will occur. In fact, in the final weeks of the development of the Plan documents, the architects are completing two companion feasibility studies, one on the possible moving and redeployment of Darby Gymnasium and the other on possible Energy Center/Infrastructure projects. Both of these studies will affect decisions made to implement one or more features of the main plan document.
INTRODUCTION AND THE PROCESS
The Master Plan for Grinnell College will develop a comprehensive working framework for future planning and change, while preserving and enhancing the College's unique culture, programs and facilities. Beyond the physical assessment of its campus and buildings, and the future evolution that will inevitably need to take place over time, this plan takes into account that Grinnell is a unique place. The campus offers a supportive environment where faculty and students interact in a mutually beneficial and respectful way. It offers academic and technological resources that allow it to be competitive with its peer institutions. And while Grinnell can provide the access to information and education that characterize today's education, its campus maintains the crucial sense of place that it has always made it special. As Grinnell College is poised to emerge as a leader in the global environment of higher education, these recommendations will help guide the College in its physical and programmatic development.

The plan is conceived as a set of guidelines to planning and decision making over the next ten to twenty years. In order to accommodate future needs and changes at the College (some of which might be unforeseen) the Master Plan document provides the flexibility to be reviewed and modified as needed. As specific projects are brought forward for implementation, fine-tuning of goals and subsequent plans will naturally occur within the Master Plan without altering its basic framework.

This current Master Plan represents the first comprehensive assessment of Grinnell programs and facilities. Previous planning efforts for the campus were developed in 1916, 1949, and 1983.

Birdseye view of the campus from 1949 Campus Plan
The Master Plan has been prepared under the guidance of a College Steering Committee and the ad hoc Master Plan Committee of Grinnell College's Board of Trustees. The project was initiated in September of 1998 and has involved the following committees in a variety of forums:

- Master Plan Advisory Committee
- Campus Advisory Committee on Environmental Concerns
- Student Government Association (SGA)
- Space Committee
- Faculty Executive Council
- Community Officials • Grinnell Community

In the process of data collection, the Master Plan Team has met with nearly every academic department and various student groups, including SGA. The team also held open forums for students, faculty and staff and met with various representatives of the City of Grinnell. The Master Plan Advisory Committee effectively served as a “sounding board” for issues identified for consideration by various groups on campus. The Campus Steering Committee gave the team general direction and monitored progress through monthly meetings.

The planning process has been organized into six phases.

**Phase I**

Program confirmation and development of planning assumptions, was led by Dober Lidsky Craig and Associates. The goal of this phase was to define building and campus changes required to support the pedagogy, curriculum, goals and specific programs envisioned now and in the future for the College. The planning team interviewed each academic and administrative department to evaluate existing space utilization and to project future space needs.

**Phase II**

This phase of the planning process included an evaluation of the campus, its buildings and environs. It began with a series of discussions and evaluations regarding architecturally and historically significant buildings on campus, and led to a definition of the essence of the Grinnell Campus as a “place.” This phase also included a review of building assessment data and ADA assessments supplied by Grinnell. The planning team evaluated campus utility infrastructure and energy requirements. The planning team identified current land holding and future growth opportunities as well as strategies for physically strengthening the relationship between the campus and the city.
Phase III

The development of “The Planning Agenda” was based on information and analysis obtained in Phases I and II. The identification of needs at Grinnell were defined and presented in the context of peer institution comparisons. (See Appendix B for peer list).

Phase IV

The “Planning Agenda” was reviewed and approved by the Steering Committee in January of 1999, allowing Phase IV, campus plan alternatives to proceed. The goal of this phase was to develop choices for the Grinnell community that responded to campus boundaries, infrastructure, adaptive reuse of buildings and new construction projects required to meet the identified needs of the College. These alternatives were presented to the Board of Trustees at a retreat in June of 1999.

Phase V and Phase VI

Phase V included a synthesis of all information collected and the development of the Campus Plan Concept. The Campus Plan Concept was presented to the Board of Trustees in September of 1999. After a series of refinements made during the summer, the Board accepted the plan in concept. The planning team developed possible implementation strategies, including schedule and cost models, from September 1999 to the present. Phase VI is the preparation and submission of all planning recommendations as outlined in this summary report. Implementation strategies and cost models are continuing to be developed.

This report is comprised of three major sections:

Section I  Master Plan Framework
Section II  Planning Agenda • Program Needs Summary
Section III Master Plan Recommendations
I. MASTER PLAN FRAMEWORK
## Table of Contents

1. **Master Plan Framework** ............................................ 7-21

   A. **Core Values and Planning Options** .......................... 7-9
      1. Strengthen Relationship to City of Grinnell ........... 8
      2. Enrollment .................................................................. 8
      3. Academic Facilities .............................................. 8
      4. Campus Life .............................................................. 9
      5. Athletics ...................................................................... 9
      6. Student Services .................................................... 9
      7. Campus Entrance ..................................................... 9

   B. **The Context — Campus and City** ............................ 10-12
      1. The Region .......................................................... 10
      2. The City of Grinnell ........................................... 10
      3. The Core Campus .................................................. 11
         • Illustrations
            - Land Use Analysis ........................................... 12
            - Campus Building Use ...................................... 12

   C. **Observations** ..................................................... 13-21
      1. General Issues ................................................ 13-14
         a. Interaction ................................... 13
         b. Community .................................... 13
         c. Approach to the Campus .............. 13
         d. Experience .................................... 13
         e. Student and Administrative Services ......... 14
      2. Land and Existing Facilities .................................. 14-21
         a. Land ................................................ 14
         b. Classrooms ...................................... 14
         c. Parking .......................................... 15
         d. Burling Library .................................. 15
         e. Forum ........................................... 16
         f. Physical Education Facility .................. 16
         g. Darby .............................................. 16
         h. AR H/Carnegie ........................................ 16
         i. Herrick Chapel ...................................... 17
         j. Residence Halls ..................................... 17
         k. Noyce Science Center ....................... 18
         l. Quad/Cowles Dining ............................ 18
         m. Bookstore ......................................... 19
         n. College Owned Houses ....................... 19
            • Illustration ........................................... 20
         p. Bucksbaum Center for the Arts ........... 21
         q. Conard Environmental Research Area ....... 21
         r. Glove Factory ........................................... 21
A. Core Values

The plan has been developed in the context of the College’s stated core values, advancement of strategies and current initiatives such as the Fund for Excellence proposals identified by the College. Specific institutional goals include:

- Excellence in Education for Students in the Liberal Arts
  - varied forms of learning, in and out of the classroom and beyond the campus
  - creative and critical thinking stimulated by the free, open exchange of ideas
  - education that reflects on its own process
  - excellent teaching as the highest priority of the faculty
  - active scholarship in traditional and interdisciplinary fields
  - need-blind admission of students with strong academic potential

- A Diverse Community
  - a wide diversity of people and perspectives
  - a residential campus in a setting that promotes close interactions
  - personal, egalitarian and respectful interactions among all members of the college community
  - meeting financial-aid needs of admitted and continuing students
  - support for professional development and well-being of all whose work contributes to the College

- Social Responsibility
  - a strong tradition of social responsibility and action
  - learning from and communicating with the world beyond the campus
  - lifelong connections that support friendship, work and learning
  - continuing to build institutional strength for educating tomorrow’s students

- A strong tradition of self-governance and personal responsibility

- Grinnell College will continue to be primarily a residential, liberal arts institution located in central Iowa.

- Grinnell College will rank among the leading liberal arts colleges in the nation.
Planning Objectives

During the planning process, the College Steering Committee and the planning team developed a set of objectives and assumptions to guide the planning process so that it is both visionary and pragmatic.

“...everyone that we talked to indicated that education at Grinnell College is typified by extensive interactions of faculty with students based around academic work. There is also a common sense that the College needs to institute programs that provide students with and encourage them to take part in opportunities for substantial academic projects during their last two years. Furthermore, there is a sense that the new science and fine arts facilities provide a good atmosphere for students to work on academic projects together and in locations close to faculty offices, labs, studios, etc which promotes a sense of community around the academic program.

Those facilities send a message to prospective students and faculty as well as those on campus about the nature of Grinnell College, as well as support the activities of students. It is critical that our renovations and expansions of academic facilities provide spaces for students to work alone, with one another, and with faculty on substantial academic projects. It is also critical that they provide spaces for first and second year students to work together and on projects of a smaller scope, but in preparation for larger and more independent work.”

Jim Swartz, Dean of the College

1. Strengthen Relationship to the City of Grinnell
   - A healthy College depends on a healthy, vital downtown
   - Assist in the stimulation of the local economy
   - Stabilize existing neighborhoods
   - Renew physically deteriorated commercial areas in partnership with the City
   - Work closely with the City to integrate respective master planning efforts, including strategies and development guidelines
   - Respect the residential patterns of the community

2. Campus Entrance
   - Create a new sense of arrival and of place for the College in the context of the City.

3. Enrollment
   - For planning purposes only, it was assumed that campus programs and facilities would support a student population of 1,500.

Since 1983, the College has seen enrollment gradually increase from 1,150 to 1,300 in 2000. It is the planning team’s experience
that any 20 year planning document/process should be based on reasonable projections. We believe the value, distinction, and reputation of a Grinnell College education will continue to increase over the next 20 years. Such a trend should be reflected in increased applications and interest among potential students. Therefore, the plan must allow for the possibility that natural progression could result in an enrollment figure at or near 1,500 in the year 2020. We have been told the College does not have plans to increase enrollment. For planning purposes, however, this figure has been chosen to create a flexible framework for future campus development.

4. Academic Facilities
   - Develop opportunities to renovate and/or adaptively reuse existing campus buildings to achieve maximum utilization prior to construction of new facilities.
   - Demolish existing buildings only if they are not making important contributions to the architecture of the Campus and if they also significantly underutilize a site, or cannot be altered to meet future program requirements.
   - Use the Noyce Science Center as a model for the development of future academic space.
   - Reconfigure instruction space to support more closely instructional pedagogy.
   - Develop and integrate new learning technologies for instruction space.
   - Provide additional opportunities for faculty/student interaction.
   - Identify future building sites for future growth.
   - Develop the Conard Environmental Research Area (CERA) to become a more vital College resource.

5. Campus Life
   - Knit together a sometimes disparate campus community through the reorganization of programs and facilities.
   - Decompress existing residence halls and expand offerings of housing styles.
   - Support the College’s residential mission, the current housing policy of a maximum of 180 students in non-college owned property will be maintained.
   - Provide opportunities to support multiculturalism and racial diversity on the campus.

6. Athletics
   - Develop athletic facilities that closely compare with those of Grinnell’s peer group.
   - Support both intercollegiate varsity athletics, and recreation, fitness and wellness programs.

7. Student Services
   - Reorganize Student Services for the convenience of students and efficient, collegial working environment for staff.
B. The Context—Campus and City

1. The Region

Grinnell College is located in central Iowa, an important agricultural region of the central United States. It is mid-way between Des Moines and Iowa City along Interstate 80. The College is located 3 1/2 hours from Kansas City, 4 hours from Minneapolis and 5 hours from Chicago by automobile.

2. The City of Grinnell

The City of Grinnell has a population of 9,000 local residents. The College is the county's third largest employer, employing 600 faculty and staff.

The Campus is located north of the downtown with stable residential neighborhoods to the east and west, and a nine hole golf course and farmland to the north (see land use diagram p 12-a). The northern spur of the Union Pacific railroad bisects the campus north-south and is actively used for freight only. (See Appendix H for downtown plan).
3. The Core Campus

The core campus is bounded by Sixth Avenue to the south, Tenth Avenue to the north, Park Street to the west and East Street to the east. Visitors to the campus most often travel along Interstate 80 to Route 146, passing adjacent to, rather than through, the downtown on Sixth Avenue. The intersection of Sixth Avenue and Park Street provides the first impression and point of orientation for visitors.

The architecture of the downtown includes a variety of brick turn-of-the-century mixed use commercial/retail and office buildings. The campus architecture includes an eclectic mix of Collegiate Gothic, Richardson Romanesque, Art Deco and modern buildings, each representing different periods in the development of the Campus. No one style predominates.
AL AND USE ANALYSIS

ACADEMIC
ADMINISTRATION
ATHLETIC
LIBRARY
PHYSICAL PLANT
RESIDENTIAL
STUDENT SUPPORT
OTHER

a

b

CLASSIC COLLEGIATE QUAD
OPEN MEADOW PRAIRIE
URBAN BUSINESS ZONE

Grinnell College
Comprehensive Campus Master Plan

SHEPLEY BULFINCH RICHARDSON AND ABBOTT / DOBER, LIDSKY, CRAIG AND ASSOCIATES
31 March 2000 • Page 12
C. Observations

A summary of the planning team’s observations are as follows:

1. General Issues

   a. Interaction:

      Students at Grinnell prize their interaction with faculty and each other and wish to enhance it. Faculty have stated that the essence of Grinnell is the intensity and quality of interaction between faculty and students.

   b. Community:

      Over time, the facilities on campus have tended to inhibit rather than promote the ability to foster community by dividing functions in various buildings. Functions often found in a Campus Center exist in at least three locations: Forum, Harris, Bookstore/Post Office; dining functions exist in at least five locations: Cowles Hall, Main Hall, Faculty House, the Forum and Grinnell House; athletics and fitness programs exist in at least two locations: PEC and Darby with the Grinnell Regional Medical Center’s fitness center offering another option.

      The current dining configuration discourages faculty, staff and students from sharing meals together, discourages choice, operates inefficiently, and has inflexible hours of operation. On-campus facilities supporting fitness/wellness programs are minimal. Athletic space tends to be intercollegiate competition focused.

   c. Diversity:

      Students, faculty and staff desire to increase diversity and make the College a supportive place for a multi-ethnic community. A request for multi-cultural space on campus has been formulated over the last several years by the Space Committee.

      In 1999, the College engaged in an external review of the quality and character of the culture on the Grinnell Campus. The audit report recommends, as a high priority, the establishment of a campus center to bring together various groups on campus. Creating and supporting a diverse faculty and student community remains a high priority for the College.

   d. Approach to the Campus:

      The approach to the Grinnell Campus typically takes visitors along Route 146, along the edge of the City of Grinnell’s downtown area to Sixth Avenue. Prospective students and their parents seeking to explore the environs may pass through the
downtown retail district. Neither route presents the City as a vital center with services and activities to support college students, faculty and staff. The lack of an identifiable campus entrance often leads to confusion and generally reinforces a poor first impression of Grinnell College. (Photos a and b).

In 1999, the City of Grinnell, with the support of the College, engaged an urban planning team to evaluate the downtown and make suggestions for urban revitalization. The College Master Plan Team and the City Urban Planning Team have met together over the last year to exchange ideas and identify areas of mutual interest. It is the recommendation of these groups that Sixth Avenue be revitalized to create both an identifiable entrance for the College and simultaneously, a stronger, more positive link between the College and the downtown.

e. Student, Administrative, and Program Offices

Various administrative and program offices are located in College-owned houses typically on the west side of campus along or adjacent to Park Street. The houses do not accommodate most programs well. As a result students are often required to visit several locations for related services. Houses cannot handle large numbers of students at peak times of the semester, such as registration. Staff collaboration, support and cross-training is limited due to this physical separation, causing inflexibility and inefficiency.

2. Land and Existing Facilities Issues

a. Land:

The planning team has compared Grinnell with twenty of its peer institutions. This group has an average of 180 maintained acres as compared to 108 at Grinnell which includes the additional 13 acres the College just acquired north of Tenth Avenue. This confirms the team’s contention that the College is comparatively land poor and potentially landlocked.

b. Classrooms:

Grinnell has been a leader in employing a small class teaching pedagogy across virtually the entire curriculum. The College has a sufficient number of classrooms, but approximately 50% of those classrooms are too small in terms of present assignment. This issue is exacerbated by the faculty’s desire/need to break down sections into smaller discussion groups within the classroom. (See Appendix D.)
c. Parking:

There is a shortage of parking on the campus and a lack of visitor parking at primary public facilities such as for the performing arts and athletics. Peer comparisons indicate that Grinnell is well below total parking standards for similar size institutions. This shortage is somewhat lessened due to available on-street parking. Currently, the City of Grinnell does not consistently enforce existing parking policies. All students are permitted to bring cars to Grinnell and the existing on-campus parking policies are not strictly enforced. Current parking lots occupy some of the most desirable future building sites on the core campus.

d. Burling Library:

To accommodate staff growth, office space in Burling Library has absorbed virtually all group study space. The building has reached and exceeded operational collection capacity. Although there remain a number of successful study spaces, the existing structure is inflexible and the building is difficult to expand beneficially. The relationship of the library to the new Bucksbaum Center for the Arts is awkward due to the very close proximity of the buildings and their competing forms.
e. Forum:

The Forum is considered by some alumni and faculty to be representative of the 1960's modern style of American architecture marking an important period in the College's history. It has some deficiencies including a number of ADA and life safety violations, inadequate space for the current programs, inadequate support space, and outdated infrastructure, that would be expensive to remedy.

f. Physical Education Facility:

The P.E.C. complex, constructed in 1971, is currently inadequate to support intercollegiate sports, general recreation, and wellness space. NCAA swimming meets take place in the existing pool, although the pool depth does not meet safety standards for starting blocks. As a result, blocks must be relocated to a deep wing of the pool, which interferes with diving competitions. The indoor track is too small for competition and dangerous for training; it is presently used primarily for walking. Locker room support facilities are grossly undersized. Fitness Center equipment and space for such equipment is also severely below peer institution averages. This facility is also inadequate for intramural, recreational, and community activities due to a lack of program space as well as support space.

g. Darby:

Darby Gymnasium makes a significant historical contribution to the architecture of the campus and has sentimental support in a variety of constituencies.

The existing space is inadequate for varsity basketball and volleyball games, due to the overall court size and the structural cross ties. (See Darby Feasibility Study dated 10 February 2000). Locker room support space is inadequate for Darby's current uses.

h. ARH/Carnegie:

Approximately half the number of classrooms on campus exist in these two buildings. As previously stated, many of these spaces are inadequate for section size, alternative teaching methodologies, and the flexible integration of instructional technology. (See Appendix D, ARH Classrooms). ARH does have well designed faculty office clusters which may serve as models for the development of additional offices.

The audio/visual center is currently located in ARH and primarily serves the languages. A reorganization of this service to accommodate campus-wide support may be considered by the College.
i. Herrick Chapel:

The current chapel is inadequate to accommodate most types of worship on campus due to the large, inflexible space relative to the size of groups that assemble to worship. The building also lacks the ability to transform the space for specific worship requirements. However, the chapel is used for other events, such as weddings, recitals, and convocations, and should continue to serve the College in this capacity.

j. Residence Halls:

At the present time, the design capacity of the residence halls is 926 beds. The current actual occupancy of the residence halls is 991 beds. This has been achieved by converting lounges and storage rooms into student rooms, converting doubles into triples and triples into quads. Overflow beyond 991 causes overcrowding in the off-campus college-owned houses (OCCO’s). The College’s policy limits students living in OCCO’s to a maximum of 180 even though there are currently 197 students living off campus in non-college owned properties. This policy may be reviewed as more OCCO’s become available and are in acceptable condition.

The existing residence halls offer a traditional housing type (e.g. singles, doubles, triples, quads) to students at a comfortable scale of typically 40 to 60 beds per hall. The general philosophy of housing on campus provides smaller scaled buildings connected by loggias to other similarly scaled residence halls. This limited selection does not provide alternatives to groups with diverse needs and interests, and does not allow the transition to greater independence and self-sufficiency desired by upper class students who reside on campus.

Norris Hall does not contribute to the general housing type on campus. It does not instill a sense of community, nor does it provide housing style options. Norris does not make a positive architectural contribution to the campus.
k. Noyce Science Center:

The Noyce Science Center provides the most successful teaching/social space on campus. The existing wood framed Biology wing does not meet program requirements and needs to be replaced. The existing Math/Psychology wing does not contain the common community break-out space found in the recent space (1997) renovation/addition. The existing Science Library has been very successful but requires expansion.

l. Quad/Cowles Dining:

Students state that dissatisfaction with the resident dining program is their primary reason for moving off campus. Issues include a desire for more choice (including more vegetarian entrees and greater ethnic offerings), a dissatisfaction with the board program, limited hours of operation, and long lines at peak meal times. The College has recently made changes based on these comments and dissatisfaction about dining seems to have abated to a large degree.

The faculty and staff do not typically share meals with students at these facilities. Reasons include the sense of these spaces being student “turf,” and general inconvenience due to remote locations relative to department offices and long lines. The food service staff reported inefficiencies in labor and production due to the split facilities. Split facilities are cited as the reason for the limited options that the dining services can provide.

The Quad Dining Room contains approximately 45% of dining hall seating (238 seats), while Cowles contains approximately 55% of seating (304 seats). These numbers are commensurate with beds on north and south campus but do not take into account the fact that most students are on south campus for the peak lunch period, thus tending to overcrowd Quad. Expansion of the kitchen and food service points within these facilities will severely impact seating.
The expansion of the Forum grille/snack bar has been successful in bringing together a cross section of the campus population and providing quick “grab and go” meals. However, it is presently undersized for peak demand time.

m. Bookstore:

Significant operational challenges confront the bookstore staff in the existing facility. Limitations are caused by a number of facility issues:

- The bookstore is on three (3) levels causing accessibility problems, staffing inefficiencies and service/monitoring problems.
- The Bookstore has no public face which alienates the community.
- Lack of an “Author Signing”/Reading/Lounge area for special programs.
- Lack of a space for art supplies.
- Lack of loading/receiving area.
- Lack of visitor parking.

Non-College community members of the City of Grinnell see the Bookstore as internal to the campus and difficult to find. This produces the perception that the College, as an institution, purposefully discourages the community from entering the campus and interfacing with Grinnell students and faculty.

n. College Owned Houses (See drawing following page):

There are 56 college owned houses that are used for a variety of functions including administrative office space, faculty offices, student services, and student and faculty housing. The houses typically provide inefficient, sometimes dysfunctional, office space. The small floor plates cause some offices to be located in more than one house (e.g. Office of the Treasurer and Office of Alumni Relations and Development). Houses used as office space tend to be expensive to operate and difficult to maintain. Given the restrictive nature of these facilities, a primary concern is the ability of the College to deliver services to students, College employees, and visitors effectively through such decentralized and physically confusing accommodations.

Macy House and Stoops House are examples of facilities that do not serve the campus community well, do not provide collegial work places, and are difficult to control mechanically and maintain physically. Students stand in long lines outside these houses at registration time. There is no sense of public and private space within, leaving potentially sensitive materials more accessible than is acceptable. File and storage space is limited partially due to inadequate floor loading capacity for multiple file cabinets.
Existing College Owned Houses

- (14) Student Houses
- (16) Office / Academic Houses
- (22) Rental / Guest (3 houses not shown)
- (4) Unassigned
- (56) Existing College-Owned Houses
o. Athletic Fields:

The College currently needs at least two additional practice fields even if no existing fields are lost to future development.

p. Bucksbaum Center for the Arts:

This center is now in use and adequately meets the needs of most Fine Arts programs, with the possible exception of office space and storage.

An issue remaining for the College to evaluate is the need for a larger theater and storage space for the Gallery and Department of Theatre. Roberts Theatre currently seats 450. (See Appendix A).

q. Conard Environmental Research Area (CERA):

CERA is comprised of 365 acres of research area, a laboratory building, caretaker's residence, and storage building, located twelve miles to the southwest of the campus. An opportunity exists to bring small scale school groups to this field research center to increase the facility's utilization and exposure.

r. Glove Factory

Located in downtown Grinnell, the Glove Factory is a good location for a number of administrative office spaces. The Office of the Treasurer, Office of Alumni Relations and Development and the Office of Human Resources are some of the activities that will function well in this renovated facility. The purchase and rehabilitation of the Glove Factory represents a major commitment by the College to support and stimulate the downtown area.
II. PLANNING AGENDA
II. Planning Agenda • Program Needs

Table of Contents

II. Planning Agenda • Program Needs .......................... 22-24

(See Appendix A for detailed programs)
Program for the Master Plan - The Planning Agenda

Grinnell College is a small, private, residential, liberal arts college of national renown. In comparison to its peers, Grinnell has an enrollment of 1,300 students compared to an average of 1,800 students. The student community-faculty ratio is approximately the same as the average of some of these colleges. All provide, on the average, small class section sizes.

<table>
<thead>
<tr>
<th></th>
<th>Peer Colleges</th>
<th>Grinnell College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>1,800</td>
<td>1,300</td>
</tr>
<tr>
<td>Maintained Acres</td>
<td>180</td>
<td>108</td>
</tr>
<tr>
<td>Total Gross Square Feet</td>
<td>1,480,000</td>
<td>1,100,000</td>
</tr>
<tr>
<td>Non-residential Square Feet per Student</td>
<td>500</td>
<td>570</td>
</tr>
<tr>
<td>Percent Residential</td>
<td>86%</td>
<td>76%</td>
</tr>
<tr>
<td>Residential Square Feet per Bed</td>
<td>330</td>
<td>310</td>
</tr>
<tr>
<td>Library Volumes per Student</td>
<td>400</td>
<td>325</td>
</tr>
<tr>
<td>Endowment per Student</td>
<td>$253,000</td>
<td>$785,000</td>
</tr>
</tbody>
</table>

Grinnell, with 108 acres, has significantly less land than the average, 180 acres. In terms of the amount of non-residential space per student, Grinnell is slightly above the average of its peers 570 net square feet (N SF) compared to 500 N SF. The college has proportionately fewer students living in residence on campus, 76% versus 86% and the amount of space per bed is slightly smaller, 310 N SF compared to 330 N SF.

Program for the Master Plan

The Program for the Master Plan has been developed through a participatory planning process that has included faculty, staff, students, administrators, and trustees.

Program and curricular initiatives have an impact on facilities. Grinnell strives to provide small class section and small group interaction in both formal and informal settings. The faculty eschews formal lecturing for active faculty and student discussions and interchange. Classrooms, laboratories, and studio spaces must be designed to support this style of teaching and learning. Moreover, the Fund for Excellence, the capstone experiment, and changes in technology and pedagogy require flexible academic spaces that will enhance and sustain a dynamic teaching environment.
Table 1, Campus Plan Agenda Items, summarizes the space required for the programs identified during the planning process. The size and space types described here are for campus planning purposes and have been used for the development of concepts and alternatives. One underlying assumption has been an enrollment figure of 1,500 students.

Each of the programs in Table 1 is defined in detail in Appendix D. These programs and estimates are preliminary and will require further discussion and definition during the facility programming phase that precedes architectural design.

### Table 1 Campus Plan Agenda Items

<table>
<thead>
<tr>
<th>AGENDA ITEM</th>
<th>NSF</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 International Programs Facility</td>
<td>22,300</td>
<td>35,400</td>
</tr>
<tr>
<td>2 Library - New</td>
<td>79,700</td>
<td>106,300</td>
</tr>
<tr>
<td>3 Noyce Science Center Phase II&lt;sup&gt;1&lt;/sup&gt;</td>
<td>32,000</td>
<td>53,300</td>
</tr>
<tr>
<td>4 Social Science Teaching and Research Center</td>
<td>7,800</td>
<td>12,400</td>
</tr>
<tr>
<td>5 Theater</td>
<td>28,100</td>
<td>37,500</td>
</tr>
<tr>
<td><strong>Campus Life/ Student Life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Bookstore</td>
<td>5,800</td>
<td>9,200</td>
</tr>
<tr>
<td>7 Campus Center/ Dining</td>
<td>51,400</td>
<td>81,500</td>
</tr>
<tr>
<td>8 Field House/ Gymnasium</td>
<td>142,000</td>
<td>190,000</td>
</tr>
<tr>
<td>9 Forum Renovation</td>
<td>18,000</td>
<td>32,000</td>
</tr>
<tr>
<td>10 Inn and Conference Center&lt;sup&gt;2&lt;/sup&gt;</td>
<td>19,000</td>
<td>29,200</td>
</tr>
<tr>
<td>11 KDIC Radio (Interim)</td>
<td>900</td>
<td>1,400</td>
</tr>
<tr>
<td>12 Parking</td>
<td>150 spaces</td>
<td>300 spaces</td>
</tr>
<tr>
<td>13 Welcome Center</td>
<td>6,100</td>
<td>9,900</td>
</tr>
<tr>
<td>14 Student Residence Hall&lt;sup&gt;3&lt;/sup&gt; 360 Students</td>
<td>81,000</td>
<td>132,000</td>
</tr>
<tr>
<td><strong>Administrative and Support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Administrative Services</td>
<td>7,700</td>
<td>12,200</td>
</tr>
<tr>
<td>16 Computer Services (Interim)</td>
<td>7,000</td>
<td>11,100</td>
</tr>
</tbody>
</table>

---

<sup>1</sup> During the course of this campus planning study, the science faculty have been revisiting the programmatic definition of Phase II. The current version, 100,000 NSF, will be subject to further discussion and rigorous review. Through this discussion, the program will be modified to reflect pedagogy, staffing, standards, and resources.

<sup>2</sup> An alternative is the co-location of dormitory bedrooms as part of the Inn and Conference Center. For planning purposes, 30 bedrooms are assumed along with space for bathrooms and related residential support. An additional 6,000 NSF and 9,200 GSF would be required.

Another alternative separates the two functions, inn and conference center, and therefore opens the possibility of separate sites. In this case, the Inn can be located near the College and downtown, while the Conference Center can be located on campus. The Inn requires 11,700 NSF, 18,000 GSF. The Conference Center requires 7,400 NSF and 11,300 GSF.

<sup>3</sup>Current housing deficit is 378 beds. A program for 360 beds assumes 18 beds added to OCCO’s and NCO’s.
III. MASTER PLAN RECOMMENDATIONS
### Table of Contents

#### III. Master Plan Recommendations

A. Facility Recommendations .................................. 25-40

1. Sixth Avenue — “Entrance to Grinnell College” ................................. 28-30
   a. Welcome Center ........................................ 29
   b. Bookstore / Cafe .................................... 29
   c. Mears Cottage ...................................... 29
   d. Main Hall ........................................... 29
   e. Streetscape Improvements .......................... 29
   f. College Inn / Grinnell House ..................... 30
   g. Burling Library .................................... 30

2. Eighth Avenue — “Heart of Grinnell College” ................................ 30-35
   a. Alumni Recitation Hall / Carnegie Hall ............. 31
   b. Noyce Science Center Phase II ...................... 31
   c. Campus Center ...................................... 32
   d. Library ............................................... 32
   e. Forum .............................................. 33
   f. Student Housing .................................... 33
   g. Streetscape Improvements .......................... 34

3. Tenth Avenue .............................................. 35-36
   a. Athletic Center ..................................... 35
   b. Harris Center / Cowles Dining ..................... 36
   c. Streetscape Improvements .......................... 36

4. General Recommendations ................................ 36-39
   a. Existing Classrooms .................................. 36
   b. Existing Residence Halls ............................ 37
   c. Administrative and Business Offices ............ 37
   d. Energy Center and Distribution .................. 37
   e. Facilities Management Building Site ............. 37
   f. Campus Security ..................................... 37
   g. Off Campus College-Owned Student Housing .... 38
   h. Off Campus College-Owned Faculty Housing .... 39
   i. Conard Environmental Research Area ............. 40

B. Architectural Guidelines ..................................... 41-43

1. Architectural Styles ........................................ 41
2. Form ....................................................... 42
3. Scale ....................................................... 42
4. Organization .............................................. 42
5. Materials ................................................ 42
6. Windows .................................................. 43
7. Roofs ...................................................... 43
8. Stairs and Ramps ....................................... 43
9. Doors and entranceways ............................... 43
Table of Contents (continued)

C. Landscape Recommendation and Guidelines....... 44-56
   1. Landscape Character .............................. 44-45
      a. Perimeter ..................................... 44
      b. Gateways, Entries and Focal Areas .... 44
      c. Large lawns and quads ................. 45
      d. Linear Spaces/Links ..................... 45
      e. Building Entrances ....................... 45
      f. Perennial and Annual Gardens .......... 45
      g. Prairies / Meadows ......................... 45
   2. Campus Vegetation ................................ 46-49
      a. Tree Management Plan .................... 46
      b. Planting Recommendations .......... 46
         1) trees
         2) plant beds: shrubs, ground covers, and bulbs
         3) flower beds
         4) lawn
   3. Landscape Systems ................................ 50-56
      a. Circulation .................................. 50
         1) vehicular circulation and parking
         2) emergency access
         3) service/utility access
         4) pedestrian pathways
      b. Campus Gathering Places/ Outdoor Space ...... 53
      c. Grading and Surface Drainage ........ 54
      d. Irrigation .................................... 54
      e. Maintenance .................................. 55
         1) management
         2) sustainable landscape management
         3) campus vegetation
         4) landscape systems
   4. Landscape Improvement Zones .................. 57-62
      Landscape Improvement Zones
      Plan (Dwg.) ..................................... 57
      a. Prairie Walk .................................. 58
      b. Central Campus Green .................... 58
      c. North Quad .................................. 59
      d. Athletic Fields ............................ 59
      e. Sixth Avenue ................................ 60
      f. Eighth Avenue ............................... 60
      g. Tenth Avenue ............................... 61
      h. Park Street .................................. 61
      i. East Street .................................. 61
      j. Tenth Avenue Parking Lots .............. 62
      k. Drop-off ..................................... 62
Table of Contents (continued)

D. Technology Recommendations and Guidelines ..... 63-79
   1. Introduction .............................................. 63
   2. Technology Goals ....................................... 64
   3. Procurement Strategies ................................ 67
   4. Recommendations ....................................... 70
       a. Recommendation 1:
          Technology Umbrella................................. 70
       b. Recommendation 2:
          Create a Technology Plan ............................ 71
       c. Recommendation 2.1:
          Technology Building .................................. 73
       d. Recommendation 2.2:
          Upgrade Campus Cabling .............................. 74
       e. Recommendation 2.3:
          Building Cabling ...................................... 75
       f. Recommendation 2.4:
          Wireless Communications Systems .................. 76
       g. Recommendation 3.1:
          Upgrade Network ...................................... 77
       h. Recommendation 3.2:
          Upgrade Computer Systems ........................... 78
       i. Recommendation 3.3:
          Upgrade AV Systems ................................. 79

E. Sustainability, Energy and Infrastructure
   Recommendations and Guidelines .......................... 80-84
   1. Sustainability Goals .................................... 80
   2. Sustainability — The First Challenges ............... 81
   3. Energy Goals ............................................. 82
   4. Central Energy Distribution ............................ 83
A. Facility Recommendations

1. Sixth Avenue • “Entrance to Grinnell College”

This concept creates a public entrance to the Campus along Sixth Avenue. Recommendations include a major streetscape improvement project extending along Sixth Avenue from Broad Street to East Street and the development of key public facilities and parking along the Avenue.
Specific project recommendations include the following:

a. Welcome Center

This proposal creates a new facility for the Offices of Admission, Financial Aid, Registrar and Bursar on a site currently occupied by Macy House and Stoops House. This facility creates a new formal front door and reception point for those approaching the campus from Sixth Avenue.

b. Bookstore

The college bookstore has the unique potential to bring the campus community together around shared needs and interests, to become an important resource and positive first impression for visitors to the campus, and to function as an interface point for the City of Grinnell community at large. The proposed site for this new facility is the southwest corner of Sixth Avenue and Park Street. This location creates an appropriate college entrance zone, with the Office of Admission directly across the street, and is along the natural pedestrian route between the campus and downtown. The College is contemplating other commercial services in the facility. As the role of bookstores continues to evolve on college campuses given the use of on-line services, this facility may be more appropriately called the “Campus Store.”

c. Mears Cottage

Mears Cottage should be renovated for administrative offices. The Offices of Admission and Financial Aid, currently located in Mears, are to move to the proposed Welcome Center.

d. Main Hall

Main Hall should continue to serve as a meeting/conferencing facility on campus with student housing on upper floors. The existing quad dining room is an ideal special function dining room connected to meeting space on the first floor level. The dining room should be supported by a catering kitchen. Primary food preparation should occur in the Campus Center kitchen.

e. Streetscape Improvements

Sixth Avenue improvements might include traffic-calming and pedestrian walks along with signage and lighting programs. The goal is the development of a streetscape which provides both a sense of entrance and arrival to Grinnell and safe pedestrian circulation.
f. College Inn / Grinnell House

The development of a thirty room college inn and the renovation of, and the addition to, Grinnell House are proposed to create modern, comfortable, convenient guest rooms for visitors to the College. This facility is proposed to be constructed and operated by an outside vendor.

g. Burling Library

Burling Library is recommended to be demolished after construction is completed for a new library. The removal of Burling will create the opportunity for a visual connection to central campus from Sixth Avenue and some limited vehicular access. This proposal will serve to “open” the campus to the community, provide a proper setting for the new Bucksbaum Center for the Arts and suggest a possible extension of the prairie walk concept beyond Sixth Avenue into the downtown.

The building may be available on an interim basis for departmental swing space during construction of academic and administrative projects.

2. Eighth Avenue—“Heart of Grinnell College”

A new heart of the Grinnell Campus is proposed along Eighth Avenue between Park Street and East Street. Eighth has historically been the dividing line between what has been known as “South Campus” and “North Campus.” This proposal knits together north and south campus through a major streetscape improvement of Eighth Avenue and the placement of key facilities along Eighth.
This concept is supported by the following project recommendations:

a. Alumni Recitation Hall (ARH) / Carnegie Hall

Renovate and add to the ARH / Carnegie complex. The new program contains new classrooms, meeting rooms, and office space, along with a space similar in character to the Forum's South Lounge.

This complex will be the primary general classroom and office facility for the humanities and social sciences departments and will create an identifiable place for international studies programs. Care should be taken in the design of an addition to ARH and Carnegie to complement and not overwhelm the existing architecture.

b. Noyce Science Center Phase II

Demolish the existing wood framed structure on the north side of the Noyce Science Center and construct a new lab facility to provide for the needs of all science departments, renovating and reorganizing spaces within the existing building as needed. The complex should include an expanded science library. The math / psychology wing should be renovated to include community spaces modeled after the Phase I project. A new entrance facing Eighth Avenue is an important design element, knitting together north and south campus.
c. Campus Center

Create a new Campus Center facility on the Darby parking lot site containing multicultural space, student organization space, food service, the post office, lounges and meeting space.

The Campus Center will contain the main kitchen for the campus including catering support which will serve special dining rooms such as Quad Dining in Main Hall.

The creation of a new campus “crossroads” has two alternatives at the center of campus. One includes the relocation of Darby Gymnasium for a new library, the other maintains Darby which may be renovated to complement the new campus center.

The proposed campus center site is at the heart of the campus geographically, is equidistant to existing and proposed residence halls and is directly adjacent to the core academic buildings on campus.

d. Library

Two potential sites have been identified for a new 106,000 GSF Library. The existing Darby Gymnasium site and the existing Forum site. This proposal creates a new integrated library information resource facility which combines library services with computer services, media services and audio/visual services. This facility will provide a seamless series of information resources and support functions for the academic program.

In the short term, additional collection capacity may be gained in Burling Library through the relocation of some collections to an expanded Science Library. However, Burling is not well suited to another major renovation / expansion project. The building neither creates a center for the intellectual community of Grinnell nor represents the serious academic ambitions of the College.
e. Forum

The Forum occupies a key site at the center of the academic prescinct and the center of the central campus green. If the Forum continues to serve as a public building on campus, program alterations, extensive renovations, and some exterior restoration are required. Exterior entrance plazas should be redesigned. If the new library occupies this site, a feasibility study will be required to determine the final disposition of the Forum Building.

f. Student Housing

To eliminate current overcrowding in existing residence halls and to absorb beds lost due to the demolition of Norris Hall, we recommend the College consider the construction of new residence halls along East Avenue north of Eighth. These additional residence halls create a third group in addition to the north and south dorms, in the same general architectural character and configuration. Students interviewed generally like the traditional housing style found at Grinnell. Students also like the 'scale' of each building housing 50 to 70 students each. Grinnell may explore alternative styles of housing to attract students not currently selecting Grinnell due to limited options. The availability of suites or apartment-style housing is becoming more common at Grinnell's peer institutions, but there is no consensus on campus regarding this issue.

For the purposes of the Master Plan, an assumed enrollment of 1500 students has been used as a benchmark. A total of 1500 students would require an additional 279 beds to meet the needs of growth and reconfiguration of existing residence halls. The total beds required is approximately 380 including 99 beds lost in Norris Hall. Existing residence halls range in size from approximately 40 to 70 beds per hall. (See table below).
Some specific proposals, such as the construction of a new Bookstore and College Inn, may require the demolition of college-owned houses adding to the total number of beds required.

g. Streetscape Improvements

Eighth Avenue improvements include traffic-calming, and a campus landscape vocabulary including plant materials, paving, lighting, signage and site furniture.

The improvements should foster a sense of connection from south campus to north and from the east side of the railroad to the west. The Library-Campus Center Complex along with Science Center Phase II will create a new exterior hub of activity for the campus.
3. Tenth Avenue

a. Athletic Center

This proposed facility replaces the existing Physical Education Center (P.E.C.) and includes a new field house with indoor track, gymnasium, natatorium, fitness area, educational space and support space. The new facility is ideally sited north of Tenth Avenue directly adjacent to all existing and proposed playing fields.

During the construction of new athletic facilities, program needs may be supported by an interim reorganization within the existing P.E.C. field house. Indoor track competitions are not held at Grinnell due to existing facility inadequacies. This space may house performance basketball and volleyball, weights and additional locker room space.
The apparent best plan is to construct the new athletic center in multiple phases avoiding investment in temporary or interim facilities.

The varsity basketball program and volleyball program are recommended to move from Darby Gymnasium to a new gymnasium integrated with the Athletic Complex.

The proposal to convert Darby into an intramural/recreation/fitness/wellness center requires additional discussion. (See Darby Athletic Center Feasibility Study dated 10 February 2000).

Athletic fields, including soccer, rugby, softball and football practice, are proposed to be reorganized on land north of Tenth Avenue. The College will continue to have a shortage of two athletic fields. The new athletic center proposal may require the football field to be shifted north approximately 30-40 yards.

b. Harris Center / Cowles Dining

The existing spaces within the Harris Center support both Campus Center functions and meeting / conference functions. The addition of special function dining space and an additional meeting space / lounge will increase the type and number of functions that may take place in Harris, increasing its utilization. The primary use of these facilities is student life-related, with outside conferencing an important secondary function during the summer months.

This proposal adds a new entrance link building between Harris and Cowles, facing south to the quadrangle. The Cowles Dining Room is proposed to be divided into student housing and a multi-use lounge. The spaces within Harris including the multipurpose room and theater would also be renovated under this proposal.

c. Streetscape Improvements

Tenth Avenue improvements include traffic calming, pedestrian walks, a landscaped boulevard, along with signage and lighting programs. The goal is the development of a streetscape which provides a sense of place, connects the Campus with open space and athletic fields to the north, and provides for safe pedestrian circulation.

4. General Recommendations

a. Existing Classrooms

All existing classrooms on campus should undergo a detailed assessment. Finishes, furniture, lighting and technology should be included in an audit and phased renovation project.
b. Existing Residence Halls

Once new residence halls are created and existing halls are decompressed, a phased renovation of these buildings should be implemented including bedrooms, lounge, toilet / shower rooms, computer labs and storage areas. The renovation of existing residence halls should include code and ADA compliance, an upgrade to all systems and finishes.

c. Administrative and Business Offices

Nollen House is recommended to continue to house the Office of the President and the Dean of the College with administrative support. This building may eventually be connected to Fell House. Some administrative offices, such as the Office of Public Relations, may remain in the houses along Park Street.

The Glove Factory will accommodate the Office of the Treasurer, Office of Alumni Relations and Development, and the Office of Human Resources.

d. Energy Center and Distribution

Any increase in load on the existing energy plant will require either an expansion of the existing plant or a new facility. The Master Plan recommendation includes a new energy center and a new utility distribution system of tunnels and direct buried lines.

Demolish existing energy plant once a new energy center is constructed on a proposed site north of the existing Facilities Management Complex. (See Energy Center Feasibility Study dated 31 March 2000).

e. Facilities Management Building Site

The existing facilities management buildings occupy a site along Tenth Avenue that is ideally suited to more public uses in the long term. This location should be identified as a future building site. Facilities Management typically continues to move toward the perimeter of most college campuses. Facilities Management should remain in its current location in the short term.

f. Campus Security

Currently located in the basement of Mears Cottage, the Campus Security Office may move on an interim basis to the present service center location in Facilities Management. Future recommendations include the integration of Campus Security with the new Athletic Center to provide 24-hour presence to the playing field areas to the north, while maintaining a clear proximity to the
core campus. The lower level of the Forum was also discussed as an alternate location for campus security due to its central location, modest amount of parking and public access.

g. Off Campus College-Owned Student Housing (OCCO’s)

We propose the creation of nontraditional housing types for upper class students desiring a more independent living arrangement. Apartment or townhouse style units, rather than traditional houses, will be much more efficient to operate and maintain for the College, while giving students some choice. Several possible sites have been discussed, including East Street between Sixth Avenue and Eighth Avenue (see diagram a), and sites between the campus and downtown.

h. Off Campus College-Owned Faculty, Staff and Visitor Housing

Currently, a shortage of appropriate housing exists for faculty and staff for a variety of lengths of stay at the College. These needs are summarized in three types (see diagram b on next page):

Type A: Length of Stay • One Day to Two Weeks

All visitors to the College may stay in a variety of College guest houses which includes the proposed College Inn as well as Grinnell House and Windsor House. We recommend Grinnell House be renovated and added to following the construction of a College Inn.

Type B: Length of Stay • Two Weeks to Six Months

Temporary housing should be provided for faculty and staff on a short term basis. We propose an apartment style housing type with daily housekeeping services. A new College-owned facility may be created on East Street between Ninth and Tenth Avenue or south of Sixth Avenue in the downtown area. Also a future commercial apartment building may be encouraged by the College and developed by an outside group for faculty housing in the downtown area.

Type C: Length of Stay • Six Months to 3 Years

Rental houses should continue to be provided to faculty and staff requiring transitional housing until they can obtain permanent housing in the community. We recommend the continued use of single family houses adjacent to the College for this purpose. The development of non-college owned housing in the downtown may also provide transitional housing in the future.
* The College currently owns 56 houses. The proposed total (77) represents an anticipated reduction as houses are demolished for new building projects and the addition of one apartment building containing 18 units for faculty/staff and one apartment building containing 18 units for students both located along East Street.
i. Conard Environmental Research Area (CERA)

The laboratory facilities require upgrade and additional equipment to be similar in quality to lab space found on the main campus. Access roads, signage and parking should be improved to accommodate small visiting groups.

Key:
1 - Prairie - reconstructed from agricultural cropland
2 - Open savanna (still being restored from unplowed pasture)
3 - Burned Woodlands
4 - Experimental burned and unburned prairie plots
5 - Lab
6 - Artificial ponds
7 - Perry Pond (constructed 1972)
8 - Upland Forest
9 - Burned & Unburned Forest Plots
10 - Riparian Forest
11 - Black Walnut Plantation
12 - Grasslands
B. Architectural Guidelines

One thinks of Grinnell College as an eclectic mix of architectural vocabularies with Collegiate Gothic being the most common. The Collegiate Gothic style grounds the campus as an academic place. This sense of place seems especially important in the greater context of the Iowa prairie which has open land forms with distant boundaries.

The architectural vocabularies on this campus provide a sense of tradition, continuity, and identity which students and alumni value in their experience at Grinnell.

Architectural elements found in existing buildings provide a human scale creating a sense of comfort and dialogue with the campus community.

It is critical on this campus for buildings to be composed relative to one another in order to create positive exterior space while maintaining and enhancing a sense of campus.

Exterior spaces tend to be expansive rather than tightly defined, encompassing occasional long views of the prairie. This characteristic of the campus should be recognized and enhanced.

The recommendation of the Master Plan is to continue and strengthen the architectural tradition of the campus through the following architectural guidelines:

1. Architectural Styles

The campus is comprised of buildings that are contextual and referential to historical styles on campus, as well as buildings that are architecturally unique such as the Forum. Object buildings should generally be the exception rather than the rule to maintain a sense of campus as place. The goal should be to develop contextual buildings which develop a dialogue with neighboring buildings and the landscape. The diversity of architectural styles on campus is a positive attribute. This diversity should be encouraged, but managed within the existing range of vocabularies found on campus.
2. Form

Building height should typically be no greater than three stories.

Gates/Rawson Towers is the tallest building on campus at 4.5 floors above grade. Vertical penetrations such as the use of towers to emphasize vertical orientation and create visual landmarks on campus are encouraged as long as these elements are developed with a sense of the greater campus composition. The proposed housing along East Street, the Library, Campus Center site and the intersection of Park Street and Sixth Avenue may be opportunities to create visual landmarks.

3. Scale

Many of the significant buildings at Grinnell contain architectural detail and composition that create human scale. These elements are often found in articulated entrances at ARH and Carnegie; interesting window detailing in Gates/Rawson Towers; and special brick detailing at gables, walls and loggias. These elements should be carried forward in future buildings.

Buildings should have some expression of base as the buildings meet the ground. Articulated bases are found on all the Collegiate Gothic buildings and the neoclassical Carnegie Hall.

4. Organization

The best examples of architecture on the Grinnell Campus are “space defining,” in that they are purposely sited and composed to create positive space around them. Examples include the north and south dorms and the academic buildings along Park Street. Future buildings should be organized to create positive exterior spaces in conjunction with neighboring buildings. Typically, buildings of simple rectangular shape or multiple rectangles in the case of larger buildings are encouraged.

5. Materials

Brick facades with limestone trim are the primary exterior materials found on campus. The use of these materials in future buildings is strongly encouraged to create a consistent theme. The Noyce Science Center and Bucksbaum Center for the Arts successfully combine several palettes of brick to knit together the various materials on campus.
6. Windows

A variety of window sizes and styles can be found on campus. Typically window organization should support a masonry method of construction expressed as punched openings, proportions of 2:1 height-to-width ratio should be used to maintain the vertical expression found in most buildings.

7. Roofs

Roof types found on campus include gable, hip and flat roofs with parapets. Future residence halls should utilize pitched roofs. Single window dormers, chimneys and cupolas are also recommended to provide scale and engagement with the sky. In general, slate and lead-coated copper are appropriate materials for roofs.

8. Stairs and Ramps

Stairs and ramps should be integrated with the design of the facade and landscape when required on the exterior of an existing or future building.

9. Doors and Entranceways

The entranceways of most of the primary buildings on campus are expressed through articulated doors, surrounds, porches, or portico elements. Primary entrances to buildings should be organized to face a street or quadrangle whenever possible.
C. Landscape Recommendations and Guidelines

1. Landscape Character

A variety of landscapes exist on the Grinnell College campus, each defined by its scale, plantings and campus use. From the majestic trees that dot the quad, to the open lawn of Mac Field, to the railroad tracks that bisect the campus, these are the landscapes that are etched into the memories and daily experiences of alumni, students, and faculty. The goal of the Landscape Master Plan is to reinforce the strengths and unique character of these and other spaces through improvement to circulation, future plantings, and maintenance. By doing so, the campus landscape will become more unified while maintaining its unique diversity.

While the overall campus extends north of 10th Avenue and south of 6th Avenue, the current campus academic core is truly bounded by 6th and 8th Avenues north and south and, east and west by Park Street and East Street.

a. Perimeter

As the Master Plan is implemented, the campus core will shift to the north, and will be bounded by 6th and 10th Avenues north and south, and Park and East Street east and west. 8th Avenue will then function as a street that integrates the perimeter campus with the new campus core passing directly in front of the proposed campus center. It is these vehicular boundaries that define the perimeter of the campus zone. The perimeter of the campus should be dominated by canopy trees as specimens of natural groups accented by flowering understory trees marking key points of entry in the core. The ground plane should be lawn with mulch beds at the base of all trees.

b. Gateways, Entries and Focal Areas

Evergreen shrubs and annuals should be planted to indicate the significant entries and focal points on campus. The plants should be of a scale that responds to the hierarchy of each setting. These areas include the intersections of 6th and Park, 6th and East, the main entry drop off from 6th, 8th and Park, 8th and East, and the north pedestrian entry from 10th Avenue.

c. Large Lawns and Quadrangles

The Central Campus Green is defined by groupings of mature evergreen and deciduous canopy trees that create a ceiling for pedestrians. Some of the evergreens are full to the ground and should be removed to open views and maintain the ceiling effect. The ground plane is simple, consisting of walkways through lawn. Other spaces included in this category are the quadrangles associated with residence hall groupings such as the South Quad outdoor space.
and the entry from 6th south of the existing library. This landscape character should be extended to include the North Quad, the future East Quad, and the 10th Avenue pedestrian entry.

d. Linear Spaces/Links

Major links like those between Noyce Science Center and the Forum are more passages than destinations. These connection spaces should be planted with grass and upward branching canopy trees at either end to create vistas and connect campus spaces. At linear spaces that provide entry to the campus core, groupings of upward branching flowering trees should be planted to provide seasonal interest and highlight the arrival experience. Other examples of these spaces are the connections from Park Street to the Quad between Carnegie and Herrick, Steiner and Goodnow, Goodnow and Roberts Theater.

e. Building Entrances

Small Flowering trees in a simple bed of groundcover are recommended at the major building entrances throughout the campus to create a character of simple elegance. The simple plantings will help reduce the annual maintenance requirements in these areas.

f. Perennial and Annual Gardens

Flowers should be planted to add seasonal color. Simple drifts of annuals should be planted at entries and focal points. The areas recommended for this treatment would be the intersections of 6th and Park, 6th and East, the main entry drop off from 6th, 8th and Park, 8th and East, and the north pedestrian entry from 10th Avenue.

g. Prairies / Meadows

Prairie grasses and wildflowers native to the Iowa landscape are recommended along both sides of the railroad tracks between the Prairie Walk on the east and the service roads on the west. The Prairie Walk would extend from 6th Avenue up to the new athletic fields north of 10th Avenue.
2. Campus Vegetation

a. Tree Management Plan

Several factors in a developed environment affect tree condition. These factors include soil compaction from pedestrians, vehicles, and lawn care equipment; moisture extremes from impervious runoff, grade change during construction and changes in soil structure. Over time, these factors will greatly diminish the stock of healthy mature trees on campus. Efforts should be taken to establish a tree management plan, prepared by a certified Arborist. The plan would include assessment of tree species, condition, longevity, and recommendations for removals and pruning. The plan should also make recommendations for tree care, new plantings, mulching and fertilization. Finally, the plan should provide budgets for immediate and annual tree maintenance.

b. Planting Recommendations

Objective:

Allow the scale and density of the planting in each area of campus to reinforce its landscape character. Enrich focal points like campus entries, gateways, and building entries, with additional planting for four-season color and interest. In those areas designated on the Plan, renovate plantings and install irrigation to reduce maintenance.

Analysis:

The majority of lawn areas on campus are in poor condition due to grading problems, overuse, and compaction from service vehicles and special events. The mowing equipment has worn circles in the lawn around trees from constant repetition and compaction.

The campus has a vast array of trees, shrubs, groundcovers and flowers that are planted without consistent order or hierarchy in regards to the plant type, the way the beds are treated and their location on campus. Plantings should be arranged to complement architecture, frame views, provide screening, and to create order to spaces on campus. Planting beds should be sized to proportions that are appropriate for their location. Minimizing the size of plant beds will reduce maintenance requirements. Additionally, beds should be mulched with one consistent material, preferably bark mulch native to the region. The use of rock mulch is unnatural and is not an ideal growing environment for many shrub varieties.
Many of the elements of the existing campus landscape require heavy maintenance, leaving other elements with little or improper maintenance. Annual and perennial flower beds as well as shrub plantings require intensive maintenance throughout the growing season. Shrub pruning, for example, is not only time consuming, it also impacts the character of the campus. Heavy and/or formal pruning of shrub plantings does not create a natural feel to the landscape. Hand pruning should be done to larger shrub plantings, and the introduction of dwarf varieties of native shrubs will create a natural character while requiring less maintenance.

1) Trees

Objective:
Large canopy trees provide the dominant landscape structure at Grinnell and are essential to preserving its character. Protect the character of the campus by ensuring the longevity of Campus trees with appropriate maintenance, and providing planned opportunities for replacements and donor contributions.

Recommendations:
• Tree Protection:
  • Modify the layout of proposed buildings to protect existing trees where feasible.
  • Modify grading and path layouts to leave the area within the dripline of existing trees undisturbed.
  • Do not mount spotlights, signage, or other decorative items on trees which can cause girdling or damage and create an entry point for pests and diseases.
  • Maintain 4-foot radius mulch ring around trunks with a caliper of under 30 inches, 6-foot radius mulch ring for trees 30-inch caliper and over where necessary to prevent mechanical damage to the trunk and roots from maintenance equipment. Adjust mulch ring as necessary for shallow rooted or specimen trees. Maintain mulch depth of 4-6 inches.
  • Use 6” mulch at construction staging areas to distribute weight and prevent soil compaction.

• Tree Planting:
  • Plant tree species that reflect the landscape character of each area of campus.
  • Plant trees as specimens, groves or drifts which are characteristic of planting at Grinnell. Use rows of trees
only in special cases where related plantings maintain the typical loose, natural character.

- Plant trees to define campus spaces, rather than emphasize circulation routes.
- Space canopy trees a minimum of fifteen feet (15'-0") from the face of buildings to prevent unnecessary maintenance.
- Provide underdrains in pits for new tree plantings as necessary to prevent inundation in poorly drained soils.

2) Plant Beds: Shrubs, Ground covers, and bulbs

Objective:

Reinforce plant beds where appropriate as a focal point or where necessary for screening, safety, or ease of maintenance, and remove plant beds where possible to emphasize the dominant structure of large canopy trees and lawn.

Recommendations:

- Preserve and maintain successful plant beds.
- Specify plant species known to be disease-resistant and easy to maintain.
- Eliminate the use of unsuccessful, diseased, or difficult to maintain plant species.
- Reduce size of all plant beds where possible to reduce maintenance and expand the sense of space.
- Remove and do not replace plant beds in areas to be disturbed by future construction.
- Remove and do not replace shrubs which hide buildings with architectural detail such as limestone. Install a mowing strip along the face of these buildings.
- Remove large shrubs requiring heavy pruning, or those too close to buildings.
- Specify dwarf shrubs that will not require pruning.
- Do not shear shrubs.
- Specify shrubs and ground covers for year-round interest, spring bloom, fall foliage, winter berries and stems, etc.
- Specify ground covers that do not require frequent edging or leaf-blowing.
- Add bulbs with small foliage in ground cover beds at focal points.
- Focus more elaborate planting, with the required special maintenance, at entries and at small-scale, more intimate spaces.
3) Flower Beds

Objective:

Plant flowers at focal points. Consider the scale of the space; use a single species and color for grand spaces and more variety of color and texture in more intimate spaces.

Recommendations:

- Plant only low-maintenance, hardy annuals and perennials.
- Plant annuals in masses with a limited palette. Masses of a single species and color.
- Plant a more varied palette of perennials with ferns and ground covers at proposed perennial gardens. Group perennial species for four-season color and texture.

4) Lawn

Objective:

Complement the impressive trees and architecture by creating a strong but simple ground plane of green lawn.

Recommendations:

- Install irrigation and limb up trees to improve turf growth.
- Test soils and amend with fertilizers and aerate as necessary for turf growth.
- Install underdrains as required in poorly drained soils.
- Install "mow strips" one brick course, along the foundations of buildings to facilitate mowing and prevent the staining of buildings by the soils.
- Do not install small areas of lawn.
- Keep use of mulch to a minimum.
3. Landscape Systems

a. Circulation

Objective:
Reorganize circulation to create a pedestrian ambiance while accommodating service and emergency access.

Analysis:
Vehicular traffic surrounds all sides of the campus core on the streets of Grinnell. Sixth Avenue to the south of campus is a state highway carrying the majority of the traffic. Eighth Avenue bisects north campus from south campus while Park Street and East Street are the west and east borders of the campus core. Student and faculty housing, athletic, and administrative offices extend beyond the boundaries of these streets creating pedestrian safety conflicts and a diminished campus experience.

Parking for faculty and students is located at the perimeter of the campus in small lots and on-street parking. There is currently no parking system at Grinnell, which causes the streets to be overcrowded with student and staff cars parked into the adjacent residential neighborhoods.

The pathway systems linking major open spaces have developed over the years through the construction of new buildings, changes in building uses, and as the functions and habits of students and faculty has changed. Currently walks are predominately concrete; varying in width based on the amount of traffic, fire access, and maintenance needs. The widths and surfaces are inconsistently finished as the result of excessive patchwork completed to solve service access problems. Conflicts often occur between pedestrian and service vehicles using the walks. The vehicles pull off of the walk to allow students to pass resulting in tire ruts and bare spots in the adjacent lawn.

Service access on pedestrian walks should only occur where absolutely necessary. In these locations, the concrete walks should be widened and may want to be edged with a unit paver to lessen the visual impact of the pavement. All walkways should be consistently paved and finished to provide a safe and visually pleasing walking surface.

The current Master Plan has addressed the College’s need for additional parking as documented in Dober, Lidsky, Craig & Associates planning report (see Appendix A). Their report indicates that the campus currently has 689 available parking spaces, but would need an additional 400 spaces to meet the needs of future expansion.
Recommendations:

1) Vehicular Circulation and Parking
   • Through the addition of new parking lots along 10th Avenue, and the reorganization of existing parking on the surrounding streets and alleyways, we have increased the current parking count by 149 spaces for a new total of 837 spaces.
   • Traffic calming solutions would increase pedestrian safety through the use of crosswalks, special paving, parallel parking and bump outs.
   • Establish memorable and convenient vehicular access and parking by creating small lots off of the alleyways behind the college owned residential buildings.
   • Cross pitch of parking lots should not exceed 5%.
   • Screen parking areas with planting.
   • Eliminate vehicular traffic and parking from the interior of the campus as much as possible.

2) Emergency Access
   • Install easily identifiable emergency access routes integrated into the campus environment.
   • In the campus core, use a combination of concrete paved walks with unit pavers on each side to break up the visual scale of the access way.

3) Service/Utility Access
   • Establish service routes with turning radii and widths large enough to accommodate service vehicles.
   • Establish service routes and delivery points that do not conflict with pedestrian traffic.

4) Pedestrian Pathways
   • Layout paths so vistas are directed to focal points related to campus life.
   • Install straight path layouts where desire lines and modest gradients suggest direct routes.
   • Install paths that are universally accessible.
   • Make passages through buildings at desire lines.
   • Develop a hierarchy of path widths and paving patterns for each.
   • Develop a standard detail for path intersections with adequate radii to prevent worn lawn.
   • To minimize the visual impact of paving and extend the appearance of lawn, grading beside walkways shall be gently bermed up three to four inches, when drainage and existing planting allow.
   • Grade paths so that concentrated surface runoff does not cross a path.
b. Campus Gathering Places / Outdoor Space

Objective:

Preserve, enhance, and create campus gathering places that give the campus a rich variety of experience and provide the setting for College traditions.

Analysis:

The existing central campus quadrangle, intended to be the landscape centerpiece of the campus, is surrounded by the backsides of buildings that lack the ability to help activate the space. The Forum's outdoor terrace is too small for students to use and primarily functions as a pass through and service point for the building. The overall size of the Quadrangle is lessened by evergreen trees that create a visual barrier to the north as well as by the bermed earth to the south that separates fine arts from the Quad.

Both north and south campus residence halls have large areas of open space. The north residence hall space functions primarily as two soccer fields which makes the area feel like leftover space when not in use by soccer activities. The south residence hall space functions well, with a good variety of spaces for events such as volleyball, gatherings, barbecues, meditation, etc.

The most popular outdoor gathering space on campus is adjacent to the bookstore and ARH. It attracts the majority of students during class breaks. However, the space needs organization to resolve gathering and circulation problems that have resulted in paths and/or bare spots in the adjacent lawn areas.

As the Master Plan is implemented, new buildings will change large, possibly underutilized areas into new and interesting outdoor spaces through its relationship to existing buildings. These spaces will add to the variety of outdoor spaces that are now missing from the campus.

Recommendations:

- Create terraces at key building entries overlooking green open space to encourage students to socialize.
- Provide shade for gathering spaces, especially along the south and west exposures.
- Install groups of benches along paths and in gardens and groves to provide gathering places for students.
- Install seating around perimeter of spaces, not in the center, to maintain their sense of openness.
- Use moveable tables and chairs at terraces so students can rearrange furniture to suit their needs.
• Consolidate other site furnishings - ash urns, trash receptacles, etc. - with seating areas and terraces to remove clutter from open space.
• Paving should reflect a hierarchy of outdoor gathering spaces. First, patterns of special pavement, durable, quality, stone materials that reflect regional character, should be installed at “outdoor rooms,” terraces adjacent to buildings that extend interior spaces.

c. Grading and Surface Drainage

Objective:
Manipulate the landform to direct surface drainage, provide universal accessibility, and enhance the campus landscape by screening undesirable views or opening up desirable vistas. Accommodate overflow routes to prevent flooding when siting new construction and utilities.

Recommendations:
• Slope paths a minimum of 1% to prevent ponding.
• Locate drainage structures to intercept surface runoff before it crosses paths and steps.
• Slope parking areas at maximum 4% (1:25 slope) to prevent accidents with car doors.
• Slope lawn at 33% maximum (3:1 slope) to facilitate mowing.
• Slope paths at 5% maximum (1:20 slope) where feasible to provide universal accessibility without ramps, landings and handrails.
• Raise grade adjacent to paths where possible to prevent erosion and reduce apparent width of paving.
• Raise grade to create a modest slope to screen undesirable views.
• Perform regular maintenance on drainage structures to prevent drainage problems.
• Reduce storm water runoff by reducing paving, and increasing planting where possible.

d. Irrigation

Objective:
Maintain the College's investment in the landscape by irrigating key campus spaces and athletic fields.
Recommendations:

In combination with soil amendments, and where necessary, underdrains and irrigation will reduce maintenance and create and/or preserve a park-like character to the campus.

The irrigation system should be designed to include a fully automatic irrigation system with time clocks, electric valves and pop-up heads. The irrigation system is most efficient if watering occurs between the hours of 3:00 AM to 9:00.

1) General
   - Design sprinkler layout to water only planted areas and not pedestrian walks and paved areas.
   - Wherever possible, irrigation of lawn and of shrubs shall be on separate zones.
   - Provide fully independent zones that can be linked to a central control system.
   - Irrigate between the hours of 3 a.m. and 9 a.m. (a functional range of 42 hours/week).
   - For Athletic Fields, use small, below grade heads safe for play (1-1/2” below surface, pushes through soil).

e Maintenance

Objective:

Reduce maintenance campus-wide by specifying low-maintenance shrubs and ground covers and durable site furnishings, and by concentrating maintenance on focal points that improve the College’s identity and enrich student life. Perform regular maintenance to reduce the costs of replacement and repair. Employ sustainable landscape management practices for their economic and ecological value.

Analysis:

All the recommendations of this document are considered for their maintenance requirements, and intended to reduce maintenance campus-wide, and focus labor-intensive efforts where the College will benefit most. These recommendations also incorporate sustainable landscape management as listed below.

A landscape master plan can only be as good as its maintenance. The most successful regimen depends not on outsourcing or in-house staffing, but rather on supervisory personnel in the field that understands and endorses the objectives of the Plan and implements them consistently. This observation, supervision, and coordination must be on an ongoing basis. Individual responsibility should be
assigned to a landscape manager for each area on campus. For new construction projects, meetings should be held to analyze and anticipate maintenance impacts, including access, staffing, and budget. Although objectives shift, usually it is possible to respond to new issues using the vocabulary of the Master Plan.

Recommendations:

1) Management:
   • Incorporate recommended maintenance for tree management, irrigation, and areas of increased maintenance into the annual budget.
   • Require maintenance staff to read and understand the intent of Master Plan recommendations and implement them consistently.
   • Assign staff responsibility for distinct areas of campus on an ongoing basis.

2) Sustainable Landscape Management:
   • Conserve and reuse resources.
   • Design and maintain irrigation for efficient water use
   • Avoid the import or export of fill; amend and reuse existing soil on site.
   • Reuse existing on-site materials as feasible including bituminous concrete.
   • Reduce storm water runoff by reducing paved and impervious surfaces.
   • Specify hardy plants, durable materials, and timeless designs that will not require intensive maintenance and frequent replacement.
   • Develop planting and maintenance plans using Integrated Pest Management to prevent the need for chemical applications.

3) Campus Vegetation:
   • Specify plant species known to be disease-resistant and easy to maintain.
   • Specify dwarf or slow-growing plants that do not need pruning or edging.
   • Plant 15'-0" from buildings to ease building maintenance.
   • Install mow strips (course of brick or other paving material) along the face of buildings to eliminate the need for lawn edging.

4) Landscape Systems:
   • Design paths with adequate width and turning radii at intersections to prevent worn lawn.
   • Perform annual maintenance on irrigation and drainage structures to prevent maintenance problems.
Landscape Improvement Zones Plan

A. PRAIRIE WALK  
B. CENTRAL CAMPUS GREEN  
C. NORTH QUAD  
D. ATHLETIC FIELDS  
E. 6th AVENUE  
F. 8th AVENUE  
G. 10th AVENUE  
H. PARK STREET  
I. EAST STREET  
J. PARKING  
K. DROP-OFF
4. Landscape Improvement Zones

a. Prairie Walk

Recommendations:

- Add 6’ wide concrete walkway from 6th Avenue to proposed Athletics Fields. The new walk would be set back a minimum of 20’ to the east of the railroad tracks.
- Add new 6’ long teak benches near key intersections with other walkways along the prairie walk.
- Add campus standard lighting every 60’ to 70’ on center. Lighting to be located on the east side of the prairie walk.
- Add new soil and regrade area between railroad tracks and new prairie walk.
- Plant prairie grasses with right-of-way on both sides of railroad tracks.

b. Central Campus Green

Recommendations:

- Realign walkways as necessary to respond to pedestrian desire lines and open views.
- Install new benches around the perimeter of the Green.
- Regrade and reseed low points and areas with heavy compaction.
- Prune all trees within the Green removing all dead branching and improving form of healthy trees.
- Remove all dead or dying trees and evergreen trees that currently block views to the north.
- Install new walk to accommodate service and emergency vehicles. Walk would be a combination of concrete and unit pavers.
c. North Quad

Recommendations:

- Install new walkways to respond to pedestrian desire lines.
- R egrade and reseed lawn areas.
- Plant new canopy trees and high branching evergreen trees to create a more park-like character similar to the South Quad landscape.

d. Athletic Fields

Recommendations:

- Regrade entire site to accommodate grading requirements of new athletic facilities.
- Add men's and women's varsity soccer field with grandstand built into regraded slope.
- Construct two soccer practice fields for men and women.
- Construct one football practice field.
- Construct women's softball field, including backstop and outfield fencing.
- Construct eight varsity tennis courts including fencing, lighting, nets, etc.
- Install concrete plaza associated with new tennis plaza.
- Install field house structure to house athletic and maintenance equipment, restroom facilities, and to provide shelter for users.
- Plant upright canopy trees in tennis plaza for shade.
- Construct parking lot to include concrete curbing, bituminous concrete paving, and lighting.
- Install automatic irrigation system for varsity soccer and softball fields. Use quick coupling system for practice fields.
- Install sports field lighting.
e. 6th Avenue

Recommendations:

- Install 6" high raised median in center of 6th Avenue as part of converting vehicular travel lanes from four to two. Installation includes new concrete curbing, and planting soil.
- Reconstruct intersections at Park Street, State Street, and East Street, raising the entire intersection by 6" to act as large speed bump to slow traffic. This also allow for easy universal access for pedestrians.
- Install 15’ wide crosswalks constructed of concrete unit pavers at all crosswalks from Broad Street to East Street.
- Install new flush and transition curbing as required for universal access at crosswalks.
- Install new traffic signal at intersection of 6th Avenue and Park Street.

f. 8th Avenue

Recommendations:

- Reorganize parallel parking though construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 8th Avenue from Park to East Street.
- Install 6’ wide concrete walkways on both sides of 8th Avenue.
- Regrade and reseed between back of curb and new walks.
- Plant deciduous canopy trees, flowering trees, and perennial flower beds near intersections of Park and East Street.
g. 10th Avenue

Recommendations:

- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
- Reorganize parallel parking through construction of neck-downs at the intersections of Park and East Street. Neck-downs include concrete curbing, concrete walks, planting soil, and lawn.
- Install new concrete curbing on both sides of 10th Avenue from Park to East Street.
- Install 6' wide concrete walkways on both sides of 10th Avenue.
j. 10th Avenue Parking Lots

Recommendations:

- Add three new parking lots along 10th Avenue to include bituminous concrete paving, concrete curbing, concrete walkways, and lighting.
- Plant new canopy trees, flowering trees and lawn for shade and visual aesthetics.

k. Drop-off

Recommendations:

- Reconstruct entry road from 6th Avenue to improve orientation for arrival as well as improve site lines at 6th Avenue.
- Add new bituminous concrete paving, concrete curb, and concrete walks along area of drop-off.
- Plant new canopy trees and flowering trees to highlight significance of entry.
- Grade and seed areas of new lawn.
- Add new curbing to connect to service drive east of the Forum.
- Add new curbing to connect to Fine Arts drop-off.
D. Technology Recommendations and Guidelines

1. Introduction

Since we first visited the campus in 1998, the technology systems at Grinnell have undergone significant upgrades and improvements. This is not surprising, since a generation of technology typically spans a period of no more than eighteen months. On this scale, the Master Plan project will have seen two generations of technology by the time of the final report!

Many of the improvements to the technology systems have been guided by discussions between the Master Planning team and Grinnell’s Computer Services group. During the course of the project there has been much discussion to ensure that the system upgrades do not run counter to the plans being developed by the Master Planning team. The result has been a series of well-focused improvements and upgrades which have allowed Grinnell to move towards some of the goals of the Master Plan before the plan itself is completed.

Highlights of these improvements include:

• Purchase of six Cisco switches to upgrade core network to Gigabit Ethernet.

• Installation of Gigabit Ethernet links, which has resulted in considerable improvement in network performance.

• Installation of a Network Management System (Cisco) to monitor network operation and performance.

• Completion of campus in-building cabling upgrade – all thinwire ethernet (an obsolete technology) removed.

• Rationalization of the core network and documentation of the system.

• Upgrade and / or replacement of core servers (six older servers replaced). Installation of a Compaq Proliant Cluster (Quad Processors @ 500 MHz with 1 Gigabyte of RAM each) running Windows NT (Version 4). Configuration of a Storage Area Network (SAN) to link servers to the RAID arrays.

• Microsoft Exchange is now available to 100% of Grinnell users.

• All Grinnell students have moved to a web-based e-mail system supported by Microsoft Exchange.

• Continued migration from WordPerfect to Microsoft Office.

• Started Technology Goal-Setting Process.

• Development of a Computer Skills Training Strategy for staff and faculty and (potentially) students – this is in the early stages.
• Introduction of “Family Mailbox” voice mail system in student rooms.

• Upgrade of audiovisual systems in a number of classrooms/Computer Labs. Fund for Excellence (FFE) Proposal submitted for eight more classrooms.

Based on the recommendations contained in this plan, the following list identifies the next steps that should be taken to ensure that Grinnell has a solid technology foundation upon which to introduce new systems and services.

• Form Technology Roundtable to plan and oversee further developments of Technology on Campus.

• Review Grinnell’s Technological Position and identify areas and/or personnel where “State of the Art” and “Emerging Technology” positions will be attained.

• Develop Technology Plan that defines technology investment for the upcoming three years. This plan will provide a brief description of each project, proposed budget, personnel involved, timescales and project goals (to measure success). The plan should take into account the Technological Positions identified by the Technology Roundtable.

• Plan and construct Technology Building to house campus technology systems.

• Ultimately, computer services and related programs should be located in the new Library, combining all information services.

• Survey existing campus cabling infrastructure and, based on findings, develop plans for upgrading and/or re-routing cabling in the event of a cable break or failure. Coordinate with plans to upgrade campus infrastructure.

• Instigate a wireless data network pilot project.

• Introduce a computer replacement policy, with the majority of computers replaced once they become three years old, to maintain a minimum level of computing power throughout the campus.

• Continue to upgrade audiovisual systems in classrooms and other teaching spaces. Further detail regarding each of these actions can be found in the following sections of this report.

2. Technology Goals

The following goals are intended to act as a guide for the development of technology systems at Grinnell. Any technology system implemented at Grinnell should address at least one of these goals and should not run counter to any of them.
Technology at Grinnell should:

- Support Grinnell’s core values and planning objectives, as set out more fully on page 7, which includes teaching students to think critically and communicate well.
- Increase interaction between faculty and students and promote active learning.
- Develop a framework for administrative computing to minimize paperwork and support interaction.
- Increase communication at Grinnell to reduce instances of “reinventing the wheel.”
- Develop a technology system with a standard core that supports multi-platformed specialized edge devices.
- Increase opportunities for training and education and improve support in the technology employed at the College.
- Support increased interaction with institutions outside of Grinnell.
- Decrease overall cost of operation and maintenance of Technology systems.
- Educate students by exposing them to modern technology in the systems we use.

Grinnell’s Technological Position

Choosing your technological position is critical in today’s fast-paced world where a technology system generation lasts approximately 18 months. As one moves up this chart towards “Emerging Technologies”, both the cost and the risk associated increase dramatically. Accordingly, as an overall campus-wide approach we do not often recommend aiming for either “State of the Art” or “Emerging Technologies.”
The following graph shows Grinnell’s position compared with those of an expanded Peer Group of similar schools, based on the results of the annual Campus Computing Project (ref: Kenneth C Green – www.campuscomputing.net). Additional data and other information in tabulated form is provided in the Appendix of this report. The graph (and the accompanying data) shows that Grinnell has the highest ratio of college-provided computers per student and is one of the leaders in providing computers to faculty and staff.

Based on the information contained in the CLAC Study, Grinnell should be at the forefront of its peer group of Liberal Arts Colleges in the use of technology in instructional, administrative, and campus life. In fact, we would go further and state that Grinnell has an opportunity to be a leader for all small Colleges. Accordingly, we suggest that Grinnell aim to achieve “State of the Industry” in most of its day-to-day technology applications and identify limited areas where “State of the Art” or even “Emerging Technologies” would be an appropriate goal.

The recommendations in this report address this aim, focusing on providing a strong technological foundation that will support the ongoing implementation of technologies at all three levels.
3. Procurement Strategies

As at most institutions, resources for installing and maintaining technology systems are limited at Grinnell. Accordingly, it is most appropriate to manage these resources so that they provide the most value. However, many institutions are burdened with a large number of legacy computers and software systems that require a significantly higher level of support than a comparable newer system.

We analyzed two months of maintenance and support data (September 1998) from Grinnell’s Computer Services (GCS) group to attempt to identify patterns or instances where legacy equipment or systems was impacting GCS’s ability to support other users. During discussions with the GCS team it became clear that these issues were having a negative impact, at least in the minds of the personnel performing the support. Major issues included customization of printer drivers, special fonts and configuration issues related to obsolete hardware.

Analysis of the data did seem to agree with these findings, although not in a totally conclusive fashion. The following graphs show the number of working days between the log-in of a work order and sign-off of the work as completed.

![September Working Days to Complete](chart.png)
The following pie chart shows the breakdown of fault categories, as reported in GCS’s fault log. Although no category or categories prominently stand out, we understand from GCS that many of these faults can be traced to aging equipment. This is especially true for the Office Applications category (21% of the total) which, on investigation, consists largely of problems associated with insufficient processor power, memory (RAM) or hard disc capacity.
While none of this data is absolutely conclusive, a number of the recommendations made in this report address the issue of maintenance and support. We recommend that Grinnell take steps to reduce the overall age of its computer hardware. Computers with more RAM and faster processors will support both legacy and the latest software and should result in fewer maintenance and support call-outs. A standardized network core based on a high speed network should also improve server access times and system performance, which will also reduce the number of support calls.

**Procurement Strategies**

The typical purchasing cycle for an educational institution follows the upper graph, with major investments (usually in the form of a grant) occurring once in a while with significant time between them. This approach results in system performance reaching (and sometimes overtaking) obsolescence long before money becomes available for upgrades and replacements. Grinnell has the opportunity to follow the procurement strategy shown in the lower graph, where lower but more regular investments result in a higher overall level of performance, along with systems that are replaced and/or upgraded every few years.
4. Recommendations

a. Recommendation 1: Technology Umbrella

The current organization for technology at Grinnell appears to be fragmented and uncoordinated. We recommend that an “umbrella” organization be formed to lead the development of the Technology Plan and the ongoing growth of technology on campus. This organization would be responsible for setting the strategic direction of Grinnell College from a technology perspective.

Given Grinnell's current organizational structure we recommend that a 'Technology Roundtable' group is formed, headed by the Dean for College Services, with overall responsibility for the development of technology systems across Grinnell. This group would be responsible for the creation and ongoing maintenance of the Technology Plan (see Recommendation 2, below). The Roundtable would include membership from GCCS, Campus Media (see below), the faculty, student body and administrative offices and other appropriate groups. It would also be advantageous to also include external expertise on the Roundtable - this could be achieved by inviting several of the Grinnell Alumni who are involved with the technology industry to participate.

“...achieve the best in teaching and learning through more effective use of information technology while controlling costs, a university needs continuing communication, cooperation, and collaboration among representatives of a wide range of faculty and academic support services to facilitate better planning, decision making, and support for faculty and students”. (Reference the American Association of Higher Education T L T R “Guidelines” - www.aahe.org and www.tltgroup.org.) The Roundtable would facilitate this.
We also recommend the creation of a new group - Campus Media - to support the increased usage of audiovisual equipment across campus. This group should be a part of, or at least closely aligned with, GCCS since, as computing and media technologies continue to converge, there will be significant synergies between the two groups. Close links should also be formed to the Mellon-Culpeper (IMTS) Group.

b. Recommendation 2: Create a Technology Plan

The implementation of technology systems across the Grinnell campus currently happens tentatively and episodically with no clear direction or long-term strategy. We recommend that a Technology Plan be developed to guide the introduction and implementation of technology on campus. The plan will structure the development of computer and network services across campus and provide a revisable strategy that is regularly reviewed for the continued development of these systems and services. It will also allow Grinnell to incorporate and learn from external expertise - resulting in a smaller chance of re-inventing the wheel.

The creation of a Technology Plan will be a major undertaking for the College. Views of stakeholders from all parts of the College (and possibly from the town as well) should be sought in order to ensure that the Plan addresses the needs of each campus constituency. Typically lasting three to six months, the Technology Plan will take an in-depth look at technology and its impact on the College and provide a series of prioritized recommendations for the ongoing advancement of technology on the campus.

The Technology Plan should identify the wide range of technologies that are available to the College, discuss the potential impact of these technologies on the campus way of life and make an assessment of the benefits, drawbacks and costs associated with each technology. The Technology Plan should address technology and its implementation in significant detail, unlike this Master Plan which must take a relatively “high-level” view of the subject in the context of the overall Master Plan. The Technology Plan
should address such issues as wireless data services, individual student Intranet Portals and laptop ownership programs - topics already suggested by the College.

This plan should have a short, a medium and a long term focus to complement the Campus Master Plan. We propose that the first three years of the plan should be well defined, with descriptions of the technologies and budgets for their implementation. The next two years (Years 4 and 5) should also have plans for technology development and implementation, but these should be less well-defined with built-in room to maneuver. Note that at the end of each year the plan should be reviewed and updated.

The fifteen year focus is intended to address the developments proposed in the Campus Master Plan. For example, the Master Plan includes the building of a temporary computing facility housing Computing Services. GCCS and several other campus technology groups will relocate into this facility when it opens. Later, the Plan calls for the building of a new library facility, that will be the permanent home of the campus Technology Groups.

Accordingly, we recommend that the Technology Plan take this into account when it makes recommendations regarding long term items. These will typically be infrastructure-related items, such as campus ductbank and cabling routes or requirements for increasing or refurbishing the space in the temporary facility. It is unwise to make predictions regarding the edge systems (and, in fact, most of the core systems) for fifteen years in the future, but the Technology Plan must take relatively known building strategies and infrastructure systems into account.

In addition, it should consider the following issues, which will have a significant impact on the successful implementation of technology at Grinnell:

- Archiving, Data Storage and Recovery
  New processes and systems for archiving information will need to be developed as new technologies are implemented. Formatting issues, including hybrid formats, format evolution and long-term legacy strategies, must also be considered.

- Technology and the Law
  Policies will be required to address:
  - Copyright issues, compliance and control of licensing for electronic media distribution
  - Individual privacy issues associated with digital storage of information
  The campus has already made progress in this area.
• Training and Orientation for Staff, Faculty and Students Staffing

In addition to traditional training methods, the use of Computer-Based Training (CBT) Systems should be considered. Staffing (and budgeting) to support the rapid and ongoing evolution of technology and related systems, including daily technical systems maintenance will be necessary.

c. Recommendation 2.1: Technology Building

The current location of Computer Services (housed in the Darby Gym) does not provide a suitable location or set of facilities to allow the group to develop the range of services that will be required. The existing space is cramped, under-equipped and overloaded.

We recommend that a Technology Building be created—either as a standalone facility or integrated with other, similarly aligned departments such as the Library. The building should house the GCCS Group, Media Services, the Campus Service Bureau and other technology groups. The Technology Building would house:

• Campus Network Operations Center – NOC
• Equipment Room
• Wiring Closet
• Entrance Facility
• Staging Area
• Offices – Standard and Hoteling
• Reception Area / Public Space / Help Desk
• Conference Rooms
• Workroom / Maintenance Area
• Loading Dock – Equipment Access
• Archive / Fire Proof Area
• Break Room
• Storage
• KDIC Radio Station
• Faculty Support Facilities – Curriculum Development

The analysis of space needs and the program for this space should be included in the Concept Design work for the new Temporary Computer Center.

It may not be necessary to relocate the campus hub if the Technology Building is close to the existing building. A study will be needed to determine the appropriate course of action.
d. Recommendation 2.2: Upgrade Campus Cabling

At Grinnell, one of the major issues facing the deployment of a high bandwidth campus network is the lack of a campus-wide distribution system to support the installation of optical fiber cabling. We recommend that Grinnell:

- Utilize the proposed Services Tunnel to support an upgraded network backbone system based on optical fiber cabling. The Services Tunnel will protect the cabling from damage and act as a central spine for distributing cabling across campus.
- Develop a resilient mesh cabling configuration. The current campus network configuration is based on a star distribution originating from the Campus Computer Center in Darby Gym. This configuration suffers from many single points of failure, where a break in the fiber upstream could render all downstream buildings unable to access the network. A mesh distribution, with buildings connected to more than one other building, will provide inherent protection from a fiber breakage as well as working in concert with the network protocol to provide multiple network paths across campus.
- Upgrade to composite singlemode/multimode infrastructure to support high bandwidth network systems and video distribution across campus.

A study of the campus cabling infrastructure should include the provision of a backbone infrastructure for the campus “One Card” system. We understand that the College is investigating the options for combining the various identification, security and vending systems into a single card that each student would carry. Such systems are implemented in a number of peer institutions and provide significant advantages to these institutions.

Depending on the scale of the “One Card” system, consideration should be given to providing cards to the Grinnell public. A “stripped-down” version of the card, allowing limited access to campus resources such as the sports facilities, would act as an additional link between the College and the City.

The proposed campus cabling configuration is shown in the Energy Center report. Obviously, the deployment of this system depends on the construction of the Service Tunnel, which may not be completed for several years. As sections of the Tunnel are completed, the campus communications cabling can be installed in the cable trays and conduits provided.
Accordingly, we recommend that Grinnell perform the following actions:

1) Perform a detailed survey of the existing infrastructure, including cable types, element counts and routing - most of this information is already available.

2) Identify critical links and connections that Grinnell cannot be without. This may include connections between the Computer Center and the Library, and between the Computer Center and the Administration offices. If possible, rank all connections in order of priority (critical, important, standard) - it may be that most or all connections are at least critical in nature.

3) Determine options for providing redundant paths or other links. It may be acceptable to leave many links as they are until the Tunnel is constructed. For those links that have a higher importance to Grinnell, these redundant paths may involve plans to install new cabling.

e. Recommendation 2.3: Building Cabling

Following the completion of the campus in-building cabling upgrade that resulted in the removal of the thinwire Ethernet cabling, the cabling systems at Grinnell are capable of supporting the 10BaseT and 100BaseT Ethernet systems that are in place. In order to ensure that the technology systems at Grinnell are integrated into future buildings, we recommend that a set of Grinnell Technology Standards be created and maintained on a regular basis. These standards should address:

- Technology Infrastructure, including
- Rooms (locations, sizes, environments, typical layouts)
- Routes (horizontal cabling distribution within the building)
- Risers (vertical cabling distribution within the building)
• Technology Cabling, including
  • Optical Fiber (multimode and singlemode)
  • Copper (Enhanced Cat 5 and higher)
  • Planning for wireless systems

These standards should be applied by the designers of new buildings on campus and should also be used when buildings are being renovated.

We recommend that the standards be reviewed every two years to ensure that they are up to date and reflect the latest developments in cabling technology.

f. Recommendation 2.4: Wireless Communications Systems

Advances in Wireless Technologies are starting to make it a viable alternative to traditional wired connections. The vision of Grinnellians strolling around their campus, meeting under the trees or gathered in the flexible spaces outside each classroom with wireless access constantly available (should they desire it) is an attractive one. However, there are a number of issues that must be addressed if this vision is to become reality in the near future.

The creation of a wireless network includes a number of issues that must be addressed. These include the installation of the network transceivers, which will require a field strength survey of each building. Structural steel and the re-bar in concrete buildings act as an attenuator of wireless data network transmissions and the extent of the network (quantity and location of transceivers) can only be determined by a physical survey.

The provision of wireless-ready computers is another issue that must be addressed. Wireless network cards are readily available and permanently installed workstations can be configured for either wired or wireless access. However, the use of laptop computers, which lend themselves to many of the advantages of wireless network access, is complicated if wired connectivity (allowing the laptop to plug into the network) is also required. We can expect to see dual cards (both wired and wireless) in the future, but currently there are few available. Equipping laptop computers with wireless network cards seems to be the most appropriate way forward at this time.

Accordingly, we recommend that a six month pilot project be set up that will install a wireless network system and provide a number of users with equipment that supports wireless data access.
The goal of the project would be two-fold – firstly to test the performance of the existing network applications and secondly to identify new applications that could take advantage of the wireless systems.

We recommend that two buildings be identified for this pilot project and that one building should be existing and the other a new building. The existing Science Center and the new Campus Center (the next new building on campus) would seem to be ideal for this project. A sampling of users, including staff, faculty and students should be asked to participate in this pilot project.

g. Recommendation 3.1: Upgrade Network

We recommend that a standardized core be built that provides the opportunity to connect many different edge devices on it. For the purposes of this report, we see the core as being the network equipment and protocols (such as TCP/IP) that distribute the information around the campus. Edge devices are the computers (which could be Intel, Macintosh or other system) and other devices that connect to the system. Similarly, software residing on the edge devices should be user-selected and chosen based on required functionality. Due to their cost, location and complexity, servers and other major network resources should currently be considered as core devices, but this may change in the future as the price of computing power continues to reduce. A basic definition of ‘core’ could be “that which is costly, difficult or inconvenient to change”, whilst ‘edge’ could be “easily changeable”.

Accordingly, we feel that the future is one of more specialized edge devices and software systems. However, we also feel strongly that a standardized network core will be critical to provide the interconnectivity and information sharing that Grinnell will require. Our belief is that both of these can (and should) co-exist together.

Based on its recent upgrade to gigabit speeds, the current network core (i.e., the servers, disc arrays and shared equipment at the center of the Grinnell network) at Grinnell is capable of supporting current levels of network traffic and those predicted in the future. In order to ensure that the network continues to support both increased usage and new technologies as they become more prevalent throughout the campus, we recommend that Grinnell.
• Upgrade the campus network to provide appropriate bandwidth throughout campus. As a minimum, switched 10BaseT Ethernet (and preferably 100BaseT Ethernet) should be provided to each client workstation, with preparations made for higher bandwidths (> 1 Gbps) for campus backbone and server connections. This system has now been put in place.
• Develop a standardized Core Network system capable of supporting a wide range of Edge devices. In an educational environment, there will always be requirements to support specialized devices. Accordingly, we recommend developing a core set of systems based on agreed standards that will support a wide range of edge devices that can connect to them. We suggest that a core network based on Gigabit Ethernet be put in place, supporting TCP/IP protocol communication between devices. This system has now been put in place.
• Continue to develop the campus-wide Network Management System to monitor, troubleshoot and plan future network expansion. This system will monitor the performance of the network and identify areas where the existing bandwidth is congested and should be upgraded. As changes and upgrades are made to the network the Network Management System should be updated to take these into account. This system has now been put in place.
• Develop redundancy and resilience features in all network equipment to minimize single points of failure and allow the system to automatically re-route around network problems.
• Implement a regular network upgrade plan to provide for future bandwidth increases.

h. Recommendation 3.2: Upgrade Computer Systems

In common with many other institutions, Grinnell suffers from having a wide range of computers of varying ages. We recommend that Grinnell undertake a phased replacement of all older computers, with the ultimate goal of having a maximum age of 3 years. Options for leasing computers should be investigated to support this goal. Over time, we also believe that the number of Grinnell-provided computers will reduce as students and faculty bring their own personal computing devices to the College.

In addition, the implementation of a server-based 'backoffice-style' management system will improve system performance and reduce operating and maintenance costs.
i. Recommendation 3.3: Upgrade AV Systems

The majority of Grinnell’s classrooms are not outfitted for multimedia presentation systems. We recommend a phased program of upgrades to bring classrooms up to one of the four levels outlines below.

- Level 1 - Basic Classroom, with capability for providing a video projector on a roll-in cart.
- Level 2 - Presentation Classroom, with built-in projector, projection screen and capability for providing a number of inputs (computer, VCR, DVD, etc).
- Level 3 - Multimedia Classroom – a high-end classroom with an integrated control system, projector, motorized projection screen, motorized blinds (if applicable), stereo sound, capability for multiple inputs and recording capability.
- Level 4 - Electronic Classroom, as Multimedia Classroom but with two-way Distance Learning capabilities (including cameras, desk microphones, etc).
E. Sustainability, Energy and Infrastructure Recommendations and Guidelines

1. Sustainability Goals

- Grinnell College will be aware and informed of the sustainability issues relating to the campus development and operation.

  The impact of buildings and their occupants on the current environment and that handed down to future generations is a growing issue requiring leaders such as the college to add impetus and prominence and set the standards for others to follow.

- All new developments will be assessed using the LEED program.

  The Leadership in Energy and Environmental Design program has been gaining prominence in the United States. It evaluates the environmental performance of a development from a “whole building” perspective over the entire life cycle and provides a definitive public standard for what constitutes a “green” building.

  The Master Plan will inform the design of all new buildings and refurbishment on campus such that sustainable aspirations become demonstrably sustainable reality.

- All development programs will utilize life cycle costing.

  A building’s impact on both the environment and the College, relates to its construction, its operation, its ability to maintain itself as a useful asset through time and finally its demolition.

  The Master Plan represents commitment to, and consideration of, the long term. This will be visible in the selection of projects, briefing of project teams and the contractual approaches followed through an assessment of true life cycle cost and not merely driven by initial cost constraints.
• All existing buildings over 3,000 s.f. will have an environmental audit carried out on them within the next two years.

  The existing building stock on campus ranges widely in terms of its age, usage and installed systems. It is fundamental in moving forward that a baseline be established.

  The environmental audit of the existing buildings will encompass a wide range of issues including resource use and waste production, the internal environment, the external environment and the way people use the facilities.

  This process represents the first step in solid commitment to action and the establishment of an environmental management system for the individual buildings.

• An environmental audit of “Campus Life” will be carried out within the next 12 months.

  This audit is supplementary to the buildings audit and is a vital component in informing the process. The audit will cover all the issues of campus life in their impact on the macro and micro environments; how people travel to campus and around campus, their views on environmental issues and the areas that really matter to them.

  No policy statements or guidelines on sustainability or the environment can prosper without the commitment and “buy in” of the people affected.

2. Sustainability - The First Challenges

• Noyce Science Center Phases I and II will be a step forward in the areas of energy saving and sustainability for the campus.

  Phase I has been a model for leading design of the ergonomics of a Science building and has been much visited. However, in terms of energy consumption and installed systems it falls substantially short of the goals set out in this Master Plan.

  Noyce Science Phase II offers a prime opportunity to build on the success of Phase I, publicly set out the College’s commitment to these goals. As part of this commitment, using the information from the environmental audit, Noyce Science Phase I will be re-appraised and modified.
• The faculty and students will “buy in” to the principles of sustainability in the Master Plan and campus life.

The College will pursue a policy of including and informing the faculty, students and town to obtain consensus and real commitment to change.

3. Energy Goals

• A limited increase in energy consumption

As part of the commitment to sustainability a limited Master Plan target will be established for increased energy consumption. During construction of new buildings there will be a steady growth in the energy consumed on campus. This energy growth will be countered through the refurbishment of existing building stock.

• A decrease in the cost of maintenance and operations

The design of the new infrastructure allied to the commitment to sustainability will produce systems that are simple in nature, readily accessible and designed for the long term. The dividend from this approach will be a reduction in the costs associated with Operations and Maintenance on campus.

• The creation of a 50 year Infrastructure

The Master Plan represents an immense opportunity for the campus to move on from a situation typified by aging and much modified infrastructure. Within the structure offered by a master plan process, new infrastructure will be designed to accommodate the
future aspirations of the College, solidly founded on a distribution tunnel network.

- Provide a first class environment to support academic programs and campus life

The primary objective for any energy system on campus has to be a positive contribution to the academic programs and campus life. The establishment of a new purpose designed energy center and infrastructure will provide the ability to deliver the right quantities of the right energy to the users in the most energy efficient manner.

- Provide an infrastructure to support changing program needs

The Master Plan represents a commitment to a structured approach to the future of the campus. Any predictions of the future needs of the campus can only be based on the knowledge we have now. Developments in technology and future academic programs we currently know nothing about will always modulate the planning process through time.

The commitment to the design principles within this Master Plan and the associated energy and infrastructure systems will provide a solid basis for changing program needs through time.

4. Central Energy Distribution

- A zero increase in energy consumption

The existing energy distribution on campus is characterized by two differing approaches having evolved over time. A central energy facility exists but is limited in capacity and equipped with aging boilers. In tandem with this, many buildings have been served through localized equipment. The effect of this has been to complicate the issues of energy distribution and reduce the efficiency.

In order to fulfill the energy consumption goal, it is essential that energy distribution on campus be centralized in a new facility. This new facility would allow the most efficient use of the installed equipment and minimize the total installed capacity through the diversity in energy use across the campus buildings throughout the day, month and year.
• A Location Free of Constraints

The existing energy center is located in the middle of the campus on a landlocked site constraining both its, and surrounding buildings', development.

The new location of the energy center will remove the constraints on development and allow the complex to respond to the rising and falling energy demands on campus over time with minimal impact on the academic program and campus life.

• The creation of a 50 year Infrastructure

Any approach to central energy distribution should be founded on the principle of providing capacity, reliability and efficiency for the future of the Master Plan. With the age and limitations, both spatially and in capacity, of the existing systems, the Master Plan offers an opportunity to start afresh with new modular equipment in a phased approach to respond to the implementation of the program.

• Provide an infrastructure to support changing program needs

The design and construction of the new energy center will be modular in its approach to allow for both the changing energy requirements of the campus over the duration of the Master Plan and the unknown program requirements of the future. (See Energy Center Feasibility Study dated 10 February 2000)
IV. THE CAMPUS PLAN
PROPOSED CAMPUS PLAN

BUILDING COLOR KEY

- PROPOSED NEW BUILDING
- RENOVATION TO EXISTING
- EXISTING BUILDING TO REMAIN AS IS

1. ATHLETIC FIELDS
2. FACILITIES MANAGEMENT
3. SOFTBALL FIELD
4. ENERGY CENTER
5. ATHLETIC CENTER
6. PARKING
7. TENNIS COURTS
8. FUTURE BUILDING SITE
9. EXISTING STUDENT HOUSING RENOVATION
10. RESIDENCE HALL COMMON
11. NEW ENTRANCE LINK
12. HARRIS CENTER RENOVATION
13. SOCCER FIELD
14. PARKING
15. EAST CAMPUS STUDENT HOUSING
16. STUDENT SERVICES
17. CAMPUS CENTER
18. OFF CAMPUS HOUSING
19. DARBY GYMNASIUM
20. A.R.H. RENOVATION/ADDITION
21. CARNEGIE HALL RENOVATION/ADDITION
22. SCIENCE CENTER PHASE II
23. SCIENCE CENTER RENOVATION
24. ADMINISTRATIVE SERVICES & FACILITIES
25. LIBRARY AND INFORMATION RESOURCES
26. EXISTING STUDENT HOUSING RENOVATION
27. OFF CAMPUS HOUSING
28. CONFERENCE / MEETING FACILITY
29. MEARS COTTAGE GUESTHOUSE
30. PUBLIC ENTRY LOOP
31. WELCOME CENTER
32. BOOKSTORE / CAFE
33. ROBERTS THEATER
34. GRINNELL HOUSE RENOVATION/ADDITION
35. COLLEGE INN
36. 6TH AVENUE STREETSCAPE
37. GLOVE FACTORY RENOVATION
38. FUTURE BUILDING SITE
39. FUTURE BUILDING SITE
ACKNOWLEDGEMENTS
**Acknowledgements**

The College and Shepley Bulfinch Richardson and Abbott / Dober, Lidsky, Craig and Associates acknowledge the invaluable assistance of the following in gathering information, discussing possibilities, and developing the Grinnell College Campus Master Plan:

**Campus Advisory Committee**

- Janet Alexander
- Emilie Beavers
- Ivy Chang
- Mark Godar
- Karen Kristof
- Steven Larsen
- Debra Martzahn
- Christopher McKee
- Mark Montgomery
- Tom Moore
- Dennis Perri

**Board of Trustees ad hoc Master Plan Committee**

- J. Robert Barr
- Richard W. Booth
- Nordahl L. Brue, Chair
- Carolyn S. Bucksbaum
- Henry Cornell
- Patricia Finkelman
- Caroline Little, Vice-Chair
- Fred Little
- Andrew W. Loewi
- Robert C. Musser
- Patricia Meyer Papper
- David White

Each division of the College, academic department, and individual faculty member gave generously of their time and opinions assisting in the needs assessment and the preliminary proposal phases culminating in this Comprehensive Final Draft Report. The faculty input showed clearly the strength of the academic mission and the interweaving of teaching, scholarship, and community which is the backbone of the institution.

The Student Government Association, the Space Committee, The Campus Advisory Committee on Environmental Concerns, and other student groups were of great assistance in communicating information and arranging opportunities for student involvement during the various stages of this project.

We thank, as well, the individual administrative offices and staff of the College for their sharing of the needs and actual ways in which the often hidden support work of the College gets done.

The city of Grinnell and its citizens were also instrumental in helping us to understand some of the relationships with the College and the community. Their comments and suggestions helped to forge a master plan reflective of the College and city while recognizing the strong ties and many common purposes of both.

Grinnell College's strong network of alumni has been, and continues to be, intensely and passionately involved with the campus plan as it has evolved through the various stages. The comments and suggestions of the alumni have tested many assumptions and solidified for the planners the sense of the College's mission and how the College has affected the lives of alumni and continues to do so.
Throughout the process, the consultant/planning team worked closely with the Campus Plan Steering Committee: President Russell K. Osgood; Jim Swartz, Vice-President for Academic Affairs and Dean of the College; David S. Clay, Vice-President for Business and Treasurer of the College; Jonathan Brand, Secretary to the College, Special Assistant and Counsel to the President; and Frank Thomas, Administrative Coordinator for Community Relations and Campus Master Plan. The Steering Committee also acknowledges the invaluable assistance of Angela Voos, Vice-President for Development and Alumni Affairs; Tom Crady, Vice-President for Student Services and Acting Director of Admission; John Kalkbrenner, Director of College Services; Mickey Munley, Director of Public Relations; and Mark Godar, Director of Facilities Management and his staff.

Finally, we thank the Board of Trustees for its vision and funding of this comprehensive assessment and plan development that is designed to strategically enhance Grinnell College. The Board’s commitment to the College and its programs will assure that Grinnell continues to be a selective liberal arts college of the first rank.