MU Campus Master Plan Update
Executive Summary

University of Missouri-Columbia

University of Missouri - Columbia

Campus Master Plan Update/ Executive Summary

July 2006

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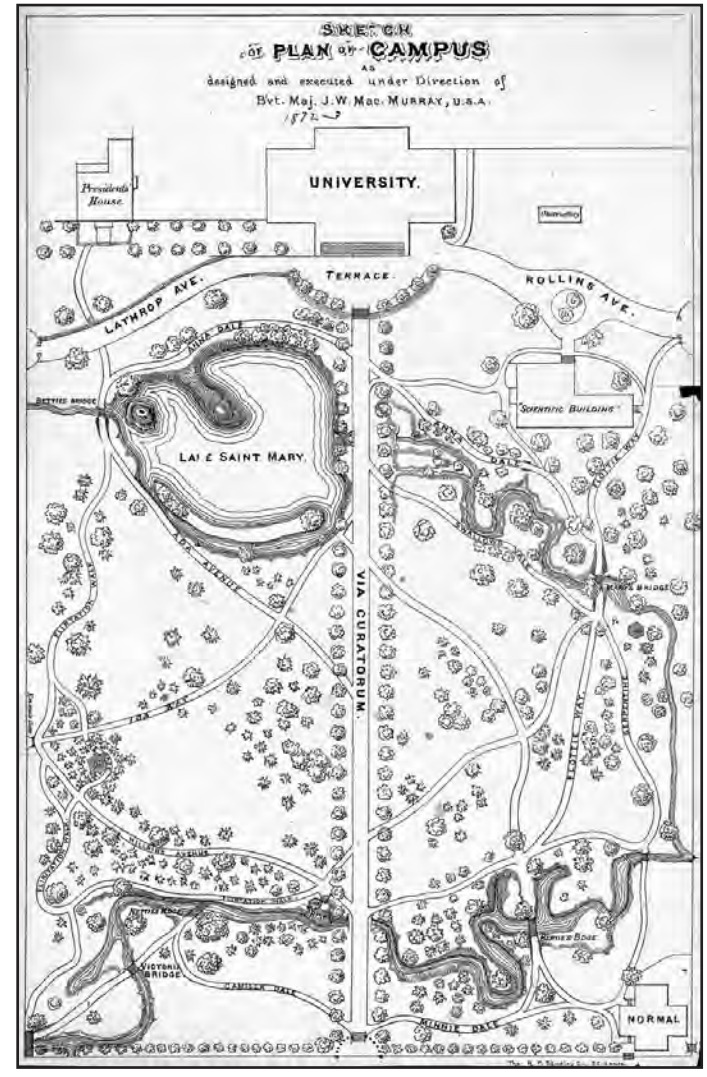


The first campus plan from 1872 shows the original five buildings surrounding expansive open space. This pattern of open spaces framed by buildings organized at a human scale continues today. *Used by permission, State Historical Society of Missouri, Columbia.*

Introduction

The University of Missouri – Columbia (MU) was established in 1839 on a 44-acre tract of land a stone's throw from the main street of Columbia, a small frontier town with a population of about 700 in the central part of the state, midway between St. Louis and Kansas City.

A leading Doctoral/Research University-Extensive public university today, MU consists of more than 18,000 acres, of which over 1,360 comprise the main, contiguous campus. Columbia's population now exceeds 85,000, making it the fourth-largest metropolitan area in the state.

The Facilities

MU's main campus contains more than 300 buildings with approximately 14.6 million gross square feet of space for academic, research, administration, medical, athletics, residential housing, student services and structured parking.

Activities relating to the university's land grant mission of 'teaching, research, public service and economic development' take place in about 170 Educational and General space (E&G) buildings on the contiguous campus. Subsidiary educational functions, e.g. student and medical services, athletics and parking, are located in 149 non-E&G space buildings on the contiguous campus.

Academic and Professional Programs

Twenty academic colleges and schools, including a Graduate School and the professional schools of Journalism, Law, Medicine and Veterinary Medicine, occupy the MU campus.

MU offers 267 degree programs — including more than 30 on-line options — and is one of only six universities nationwide with schools of Agriculture, Engineering, Medicine and Veterinary Medicine on the same campus. Institutional Research figures show MU's teaching and research faculty number 3,612, and is supported by a staff of over 7,000.

Current Enrollment Figures

During the 2005-2006 school-year, a record 27,985 students enrolled at MU, an increase of 4 percent over 2004's total (27,003). Of the recent total, 77 percent (21,644) were Missouri residents; 10 percent (2,899) were minority students and 5 percent (1,374) were international students. Four percent (1,069) of the students are seeking professional degrees, while 20 percent (5,051) are seeking graduate degrees.

A Legacy of Sound Planning and Design

Campus architecture reflects MU's growth and development into an internationally visible research university. The campus began as a unified ensemble of buildings that, through special architectural concern with the natural environment, evolved over time into districts distinguished by unique architectural styles and color palettes.

The Original Campus

In 1875, five structures comprised the campus: the Neoclassic Academic Hall (the main classroom building); the Scientific Building; a president's residence; a small observatory; and a "Normal School" for women's vocational training.

The 1893 Red Campus

Academic Hall's fiery destruction in 1892 resulted in the creation of an entirely new campus. Within a year, six red-brick Victorian structures had been erected at the edges of a grassy rectangle, later named Francis Quadrangle. In the quadrangle's center, the old Academic Hall's six Ionic columns were left standing as a memorial to the university's beginnings. A new academic hall (later renamed Jesse Hall) anchored the quadrangle's south end and serves today as the campus' main administrative building. Known as the Red Campus, the area in 1974 was listed on the National Register of Historic Places.

"Academic Hall's fiery destruction in 1892 resulted in the creation of an entirely new campus … Known as the Red Campus, the area in 1974 was listed on the National Register of Historic Places."

By the early 1900s, the MU campus had spread south and east from Francis Quadrangle as enrollment increased. The agriculture campus, known today as the White Campus, is shown in the upper left area of this 1910 postcard. *Photo credit: University Archives.*

The East (Agriculture) or White Campus

With the laying in 1900 of the cornerstone of Waters Hall, both the College of Agriculture and the "White Campus" began to take shape. Collegiate Gothic buildings of white limestone, dedicated to agriculture programs, were erected over three decades in pasture land east of the Red Campus.

An Expanding Campus

Increasing enrollment from the mid-1940s through the 1970s resulted in the construction of academic, medical science, administrative and student living facilities in residential areas adjacent to the campus and on open land to the east, south and west of the Red and White campuses. These new structures were built in the International- or Early Modern architectural style, faced with buff- or yellow-colored brick that attempted to mediate, if not tie together, the older red-brick and white-limestone structures.

MU's Campus Master Plan was implemented in 1980 to unify the campus. Properties adjacent to the core campus were acquired, allowing open areas and pedestrian corridors to be created, beginning the integration, unification and beautification of campus districts and the development of the university's historic "sense of place."

Planning for the Future

Between 1985 and 2001, MU's annual enrollment – accompanied by unprecedented construction on campus, which continues today – averaged around 23,000 students, reflecting a nationwide trend in which the growth of facilities has been driven less by enrollment and more by the expansion of research, support functions and services institutions are providing.

A surge in enrollment beginning in 2002 reached a record 27,985 students the 2005-2006 school year. This increase, along with the post-1985 construction of 71 major buildings, the ongoing construction and design of 18 structures, and the planned – through 2010 – construction of 16 facilities, indicate the scale of MU's growth needs.

Research drives development

Campus development is driven increasingly by MU's burgeoning research enterprise. Over the last decade (1993-2002) for which comparative figures are available, the university's 163 percent growth in federal research funding ranked second among public AAU institutions.

During the 2005 fiscal year, scientists and scholars at MU achieved record levels of external sponsorship, with total expenditures falling just short of $180 million. This new figure, a 10-percent increase over 2004, is a welcome indication of the continued growth of MU's research enterprise and a confirmation of the university's place among the nation's elite research institutions. In National Science Foundation funding alone, MU leads all Missouri universities, is in the top 15 universities nationwide and is ranked 14th in the nation in research funding in life sciences.

MU continues to aggressively seek external funding to supplement state appropriations and student fees. The university continues to attract not only competitive money for research programs, but is also securing funding to renovate existing buildings and construct new facilities, such as the recently completed National Swine Resource & Research Center and the proposed Regional Biocontainment Laboratory on the East Campus.

MU Campus Master Plan Process

Campus planning and development are accomplished through the MU Campus Master Plan (MUCMP), an ongoing, dynamic, participatory process begun in 1980 and administered by Campus Facilities. The goal of the MUCMP is the support of MU's institutional priorities and strategies through the construction, maintenance and renovation of facilities, infrastructure and landscaping to ensure "the creation of a unified, efficient environment that is both inviting to students and enhances the university's [land grant] mission of teaching, research, public service and economic development."

Facilities, Infrastructure and Landscape Planning

The primary MUCMP concerns are: 1) siting and arranging future academic and non-academic facilities throughout the campus, 2) determining overall design parameters, including infrastructure and landscaping, within which new projects fit, and 3) the planned maintenance, renovation, and preservation of existing facilities.

Campus master planning is principle-based and a function of the following planning objectives:

- Identifying and confirming the continued use, modification, demolition, and/or construction of buildings
- Identifying the purpose, size, function, and location of new facilities
- Identifying and evaluating campus landscape components
- Identifying and evaluating campus vehicular and pedestrian circulation, and parking networks
- Illustrating changes proposed for remedying deficiencies and serving new development
- Identifying, evaluating and illustrating university, neighborhood, and community land use, ownership, restrictions, and circulation patterns
- Articulating an overall campus-plan concept guiding future development

Campus master planning is based firmly on architectural and construction principles, but remains flexible in planning issues, goals and program objectives, which are constantly changing and can be only vaguely foreseen and defined.

Participatory Planning

The basic tenet of the MUCMP process is stakeholder involvement, which is deemed critical in meeting MU's campus-planning needs. Facilities, infrastructure and landscape planning and development cannot be accomplished effectively by distant individuals or organizations, or even by local committees. Planning and development of MU's campus is thus a function of the needs and wants of students, faculty, staff, and the general public, all representative of the geographical, educational, social and political surround of which the university is part. Expanded involvement and accountability provide multidimensional expression of planning needs that might otherwise go unexpressed, and allows for productive, rewarding campus planning.

MUCMP's unique planning process thus fosters a maximum of planning-and-design freedom in responding to changing academic and research needs. Campus stakeholders involved in the planning-process exercise a mandate of interactively planning needed facilities, infrastructure and landscaping. The MUCMP process supports institution goals and objectives while preserving MU's historic architectural fabric and all-important sense of place. A reflective process, the MUCMP is

"… the MU Campus Master Plan (MUCMP) [is] an ongoing, dynamic, participatory process begun in 1980 and administered by Campus Facilities."

Annual public forums allow members of the MU Campus community and the public at large to review and validate the updated annual *MU Campus Master Plan*.

marked by continuous and successful participatory productivity and accomplishment.

The MU Campus Master Plan Publication

Planning strategies, expectations, possibilities and development accomplished through the MUCMP process are presented annually in the "MU Campus Master Plan (Year)," a tabloid publication and campus map illustrating existing MU buildings, projects recently completed, projects in design or construction, projects in the planning stage, and possible future facilities. The publication also contains narrative on topical campus-development issues and is prepared in conjunction with an annual public forum where ongoing campus planning is presented for review and validation by the campus community and public at large.

This Campus Master Plan Update/Executive Summary, a periodic planning-update of and addendum to the MUCMP publication, provides campus stakeholders a long-range view of the resources and capacities critical to day-to-day planning and decision-making on the future growth and development of the campus. The objective of this report is to establish an updated foundation for campus-planning from which future campus development may proceed. The report looks at where MU is today, where campus development — facilities, infrastructure and landscaping — are headed and how the MUCMP process supports developing institutional strategies and priorities. Graphics illustrating these concepts and referenced in the following chapters can be found in the "Campus Planning Maps" section.

Campus planning priorities

Currently in the midst of major planning, the result of enrollment growth and increased research funding, the MUCMP today addresses the framework of open space, circulation and infrastructure in which growth will occur, with a focus on the density and capacity of the Central and East campuses and the Southeast Gateway as the core areas of institutional growth and change (See Figure F, page 20).

Due to decreasing availability of campus building sites, academic and research facility growth patterns — including pedestrian and vehicular circulation and infrastructure needs — are being meticulously analyzed to identify the capacity for future development. Development must stay in line with roadway capacity and utility infrastructure, and must be organized to support academic functions and the campus' quality of life. Future development must be compatible with the existing campus and community environment.

Original ideas of the 1893 design of the MU campus — clear spatial organization, human scale of the campus environment, and integration of architecture and landscape — have been maintained over the years and should continue to guide future campus planning.

The Bond Life Sciences Center provides state-of-the-art laboratory and teaching facilities for six MU schools and colleges collaborating on research to improve food, health and the environment.

MU Campus Master Plan Framework

The MU campus-plan framework identifies existing physical developmental patterns and networks defining the campus and its surroundings, where future campus growth will occur: the regional context in which the campus exists, campus land-use districts, vehicle and pedestrian circulation systems, campus infrastructure networks, interface with the community, and the campus' open-space structure that ties it all together.

MU's master-planning builds on this framework by projecting where and how future development should take place. The framework indicates how open space, circulation and infrastructure networks need to be reshaped to accommodate development. Importantly, the campus master plan identifies those aspects of the existing framework that must be preserved and modified to enable sound growth for future generations. The vision embodied in MU's Campus Master Plan is to sustain a cohesive campus environment fostering the university's mission of teaching, research, service, and economic development.

Regional Context

MU has an extensive physical presence in the community. As the region's largest employer, the university significantly impacts the region's economy.

Off-campus university property within the city limits includes the Ellis Fischel Cancer Center campus (northwest); Columbia Regional Hospital (northeast); the Lemone Industrial Park facilities and the College of Agriculture, Food and Natural Resources' South Farm, both to the southeast of campus — all approximately a 10-minute drive from the central campus (See Figure A, page 15).

Campus/Community Interface

MU is part and parcel of the City of Columbia, with which it continues to enjoy a positive relationship. A community-within-a-community, MU manages its educational mandate while sharing infrastructure and identifying and addressing common municipal and civic concerns and issues with city officials (See Figure B, page 16).

Environmental Responsibility

MU is concerned with planning and managing environmentally responsible campus development. Particular concerns are land-use efficiency; energy conservation; waste management; materials recycling; and reducing reliance on vehicles for commuting and traversing the campus. The impact on the community and campus "quality of life" is carefully considered in the design of all projects.

A Long-standing Symbiotic Relationship

MU has long recognized a "symbiotic" relationship with business and residences on its perimeters, the strength and protection of which must be maintained. Planned interface and integration strategies will lead to a greater utilization of campus and area resources that benefit all.

Cultural Programs and Activities

MU's commitment to cultural programs and activities, a central quality of its civic presence in Columbia, is currently exemplified by a planned regional performing arts complex to be located on the north periphery of campus, both contiguous and integral to the central campus and community. The proposed development will have state-of-the-art capability to attract a wide array of cultural and academically related events to the region.

Athletics is an essential auxiliary to academic activities and an important link to the community, region and, indeed, the entire state and nation. State-of-the-art sports facilities, ideally located in an open area south of the central campus, accommodate enormous campus-community and public interest in university sports programs.

Since its initial development in 1839, the MU campus has abided by consistent principles of campus design. The original ideas for the campus — clear spatial organization, human scale of the campus environment and integration of architecture and landscape — have held fast for over a century and a half and will continue to hold in the campus master plan. *Photo reprinted with permission of University Archives, C:0/3/8.*

"The basic land-use pattern is sound and should not be altered in any substantial way to accommodate future growth and development."

Collegial edges, such as the corner of College and University avenues, establish an identifiable edge and draw viewers into the campus. An arched entry connecting Stephens Hall, left, to Lefevre Hall leads to the White Campus.

Land-Use Districts

Land use on the MU campus fits the classic pattern of America's land-grant universities: A compact, well-defined academic core and academic-support facilities occupying an area centered on the university's main administrative center and library, and flanked by student residential and recreational areas connecting academic life with social learning experiences (See Figure J, page 27).

MU's medical area is also related closely to the academic core, an important linkage reinforcing the campus' growing research mission. Major public thoroughfares allow direct access to University Hospital and related medical facilities serving the community and region.

Beyond both the academic core and medical area, land use accommodates intercollegiate sports facilities, agricultural areas, large surface parking areas, the Research Park and a golf course, all requiring extensive areas of land. The basic land-use pattern is sound and should not be altered in any substantial way to accommodate future growth and development.

Open Space System

MU's open space system comprises a network of formal landscaped spaces and places that, vis-à-vis the Mizzou Botanic Garden, unify the campus. Open spaces permit visual axes to be integrated into the design and placement of buildings, fostering a sense of community and unifying the campus by providing sight lines to Jesse Hall Dome, Memorial Union Tower, and other present — and future — campus icons (See Figure C, page 17).

MU's "Sense of Place"

The university's commitment to open space stems from traditional campus designs modeled after small communities. The design of Francis Quadrangle, for instance, is similar to the plan first implemented by Thomas Jefferson at the University of Virginia. This open-quadrangle theme is carried throughout the campus, helping to create MU's sense of identity and place.

Since the early 1980s, MU has taken bold steps in developing open spaces and creating green space. The Carnahan Quadrangle, Kuhlman Court, Speakers Circle and Lowry Mall are dramatic examples of effective planning and timely appropriation.

Collegial Edges

A strong sense of place and campus unity is achieved by the manner in which buildings have been placed at the edge of the MU campus. These "collegial edges" allow the articulation of open space, establish an identifiable campus edge, and draw the viewer into the campus.

An extensive, natural open-space system exists along the perimeter of Hinkson Creek. Natural and agricultural land, recreational fields and a golf course make up the system whose natural, open-space character is basic to MU's land-grant legacy. The open-space planning goal of the south and east edges of campus is to strengthen connections between these outlying, natural areas and formal, open-space areas at the heart of campus.

Campus Development Capacity

Topography, past land use, open-space character,, infrastructure and the proximal clustering of like-functions have resulted in widely varying developmental densities within MU's 1,360-plus acres of contiguous campus.

Planning Study Areas

Given that density, character, and capacity disparities exist on campus, MUMCP planners have subdivided the campus into the following planning-study areas for more detailed analyses of capacity (See Figure D, page 18):

1. The Central Campus is distinguished by the campus' traditional "academic core" functions; the Health Sciences complex; and most of the undergraduate residential areas. Future development here depends on interstitial infill sites and redevelopment of certain existing building sites.

   Future building capacity in the academic core campus (after deducting the area of buildings that might be replaced) is estimated to be in the range of 1.2 to 1.4 million gross square feet, which may vary somewhat as individual sites are analyzed in greater detail. Criteria for identifying future sites are both aesthetic and functional. Future building sites must avoid intruding on or disrupting open spaces and vistas in the core area that are critical to the character of the campus. Sites must also accommodate the fabric and the established building scale of core structures, which generally average three or four stories in height.

2. The Southeast Gateway's principal planning concern is the realignment of Hospital Drive, which will enable development adjacent to the Ambulatory Care Building, thereby linking the area with Central Campus. Development capacity here exists in the creation of new building sites where extensive hospital surface parking and the University Terrace apartments now exist.

   Projected capacity for development in this area ranges from 1.6 to 1.8 million gross square feet, which does not include future expansion or redevelopment within the Health Sciences complex west of Hitt Street, the subject of its own extensive planning process.

3. The East Campus is an area of significant potential growth through "infill" among existing buildings to the north (e.g. Bingham Residential Complex, School of Veterinary Medicine) and construction of major new developments to the south. The balance of the site is taken up with surface parking lots and smaller ancillary buildings.

   The estimated future building capacity of the East Campus is between 1.6 and 1.8 million gross square feet, based on the plan framework and density assumptions.

4. The South Campus study area contains a variety of intercollegiate sports facilities in MU's Sports Park (e.g. the Mizzou Arena, Memorial Stadium, Simmons Field), the MU Research Reactor and support facilities, the A.L. Gustin Golf Course, wooded land and open fields. Future development will likely occur in concentrated clusters associated with existing facilities.

Potential Building Capacity

The MU campus currently accommodates approximately 14.6 million gross square feet of classroom, research and teaching laboratories, administrative, residential, sports, medical, support, and structured-parking space.

Approximately 11 million gsf of this footage has been constructed since 1960 (4 million gsf was built

"Topography, past land use, open-space character, infrastructure and the proximal clustering of like-functions have resulted in widely varying developmental densities within MU's 1,360-plus acres of contiguous campus."

"Enrollment … funding sources, and institutional mission and resources, make the projection of future growth and terms by which it should occur clearly prudent."

between 1990 and 2001) through infill of interstitial sites in the Central Campus area and expansion to land outside the central campus. Construction of many large-scale buildings associated with health sciences, sports and recreation, residential life and structured parking, tripled the space-growth that occurred prior to 1960.

Unprecedented space-growth continues at MU, driven today by the robust expansion of funded research facilities and enhancement of campus community life with residential, cultural, sports and other support facilities. This growth is also sustained by higher standards of accommodation driven by today's pedagogy and technology. Enrollment (a 2002 surge in student enrollment in 2005 reached a record high of 27,930), funding sources, and institutional mission and resources, make the projection of future growth and terms by which it should occur clearly prudent (See Figure F, page 20).

Campus development in the academic core varies from one-story buildings like the Gaines/Oldham Black Culture Center, foreground, to the five-story Bond Life Sciences Center, background.

Establishing a Framework

Three key campus areas are being studied for establishing a framework with which to make sound future siting decisions: 1) Central Campus' traditional "academic core," where undergraduate instruction is concentrated (See Figure F-1, page 21) 2) the "Southeast Gateway" area (See Figure F-2, page 22) and the 3) East Campus (See Figure F-3, page 23). Building capacity in these areas is estimated to be between 4.4 and 5 million gross square feet, an area approximately one-third more than MU's existing building space.

The centrality and contiguity of the areas to each other and the rest of the campus are critical factors in the future growth of academic, research, residential and common facilities, including efficiency of operations, resources and vitality of academic and community life.

The above three areas remain works in progress, the fundamental goal being that of establishing a disciplined-but-flexible, unified, efficient framework for siting future buildings.

Major Renovation Needs

MU has many educational and general (E&G) buildings that, from an exterior point of view, appear to be functional. From a teaching-and-research, interior point of view, however, they are functionally obsolete, meeting neither the space needs nor the technological requirements of today's students and faculty.

As of FY2006, there are 38 such outdated E&G buildings on campus, which contain 1.79 million gross square feet of obsolete space, nearly one-third of the campus total of 6.4 million gsf of E&G space (See Figure G, page 24). Most of this antiquated space is located in the academic-and-administrative center, or "heart," of MU's Central Campus Planning Area, that part of campus bounded by Elm Street/University Avenue (north) and Rollins Street (south) and by Sixth Street (west) and College Avenue (east).

The 'Interior Renovation-Rehabilitation' Problem

The biggest share of outmoded E&G space was constructed during the 1950s and 1960s, although much consists of earlier construction. Most has never been significantly upgraded, which has resulted in substandard space for teaching and research functions, and the creation of an estimated $389 million backlog of needed "interior renovation and rehabilitation."

Existing Renovation Backlog

The state legislature and UM in 1994 established Executive Order 28, which sets aside as funding 1.5 percent of the replacement value of campus buildings to clear up the backlog of deferred maintenance and repair projects. This funding, however, is not available for "renovation and rehabilitation" projects. Other funding sources, such as legislative appropriations, federal grants, and gifts, thus need to be identified.

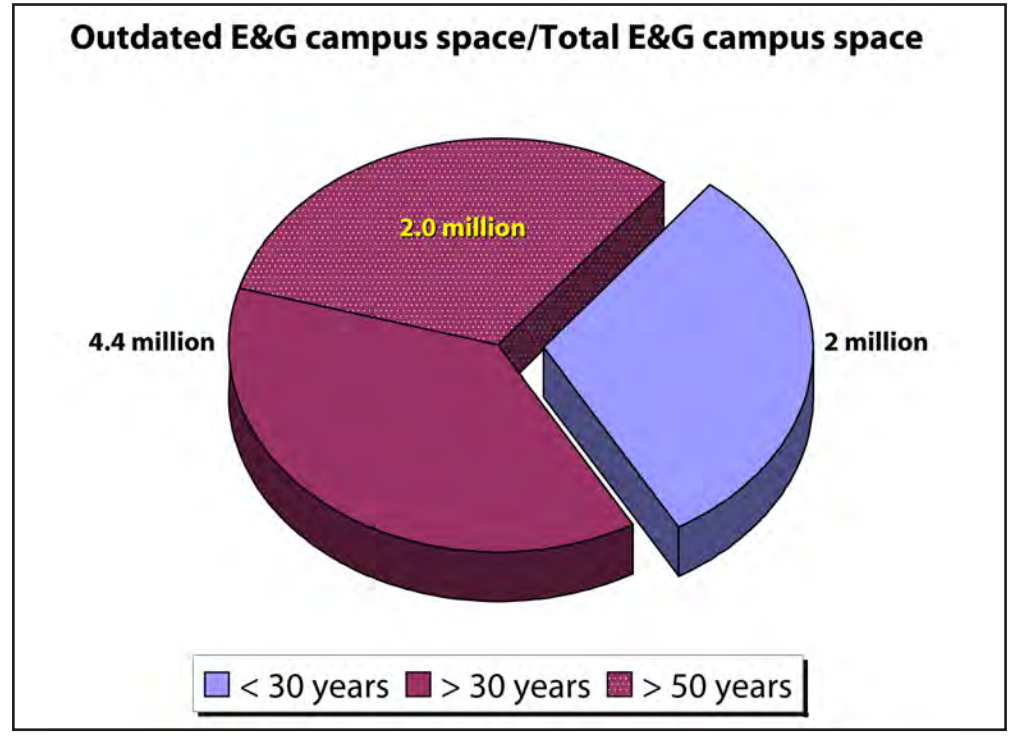
Fixing the Problem

A funding mechanism for this backlog must be identified. Several options are available, including increased legislative appropriations and increased gifts. An approach similar to Executive Order 28, which would return obsolete buildings to their full educational function and value in a reasonable amount of time, has been discussed. Setting aside an annual 2 percent ($22.3 million) of the present $1.14 billion replacement value of MU facilities would allow campus building obsolescence to be eliminated in approximately 20 years.

Many outdated facilities, such as these in Swallow Hall, do not meet the technological and space needs of today's faculty and students.

"MU has many E&G buildings that … appear to be functional … however, they are functionally obsolete, meeting neither the space needs nor the technological requirements of today's students and faculty."

Top: Built in 1918, Neff Auditorium became obsolete for use by today's journalism students. Bottom: A 2001 renovation transformed the auditorium into a comfortable facility adapted to modern technology.



Of MU's 6.4 million gross square feet of education and general (E&G) space, about two-thirds, or 4.4 million square feet, is more than 30 years old. Two million square feet of that amount are more than 50 years old.

MU Campus Infrastructure

MU's campus infrastructure, the interconnected physical framework of utility, transportation and service systems is of fundamental concern in the MU campus master planning process.

Electrical systems, steam systems, potable water and chilled-water systems are critical to MU's operations (See Figure H, page 25). Sanitary sewer and storm-sewer systems also play a critical role in campus operations (See Figure I, page 26).

A network of campus streets and sidewalks allows movement of service and private vehicles, faculty, staff, students and visitors. This network — which supports an estimated 40,000 students, employees and visitors — is accessed daily by some 35,000 vehicles, which create a pedestrian-vehicle interface of major concern (See Figure E, page 19).

Proposed Infrastructure Upgrades and Extensions

Central & South Campus Upgrades/Extensions

Additional steam capacity, electric, and chilled water lines will be required to serve the new Brady Student Center Expansion, the National Plant and Genetics Security Center, the proposed Technology Incubator Facility, the International Institute for NANO & Molecular Medicine and other projects campus-wide. The proposed Rollins Street Sanitary Sewer Main upgrade will also support new construction.

Southeast Gateway Upgrades/Extensions

Utilities must be extended and distribution loops completed to allow the construction of a planned Health Sciences Research & Education Facility, Surgery Tower and Parking Structure # 7 and to maintain utility-reliability to these facilities. The proposed Hospital Drive Sanitary Sewer Main upgrade will also support new construction here.

East Campus Upgrades/Extensions

Utilities must be extended to serve the Regional Biocontainment Laboratory and the proposed Comparative Medicine Center.

Pedestrian/Vehicular Circulation

Traffic Safety

Major public arterials: Stadium Boulevard, Providence Road and College Avenue provide high-volume, regional access to the university and Columbia's central business district. Pedestrian crossings here must be limited, in order to maintain vehicular traffic.

MU has taken major steps to improve pedestrian movement and safety on these arterials. A pedestrian bridge over Providence Road (completed in 2002) improved safety for pedestrians in the MU Sports Park. A pedestrian bridge over College Avenue (completed in 2004) links nearby student residential facilities with the Central Campus core to the west.

Campus collector streets: Rollins Street, University Avenue, Maryland Avenue and Hitt Street provide access to and through campus, but with less vehicle volume and speed. Nevertheless, numerous pedestrian crossings on these roadways create a relatively delicate balance between the flow of vehicular traffic and the safe movement of pedestrians.

Pedestrian-friendly ("Closed Campus") street corridors: A portion of Ninth Street to Conley Avenue and a portion of Hitt Street fronting Memorial Union are closed to vehicles during class hours, measurably enhancing pedestrian safety. At other times, these two roadways function as campus "collector" streets. Future campus development may dictate the closure of other "core area" streets.

"MU's campus infrastructure, the interconnected physical framework of utility, transportation and service systems is of fundamental concern in the MU campus master planning process."

A plant operator monitors the operation of the MU Power Plant. The plant is capable of reliably and efficiently meeting all of the campus' current steam and electricity needs.

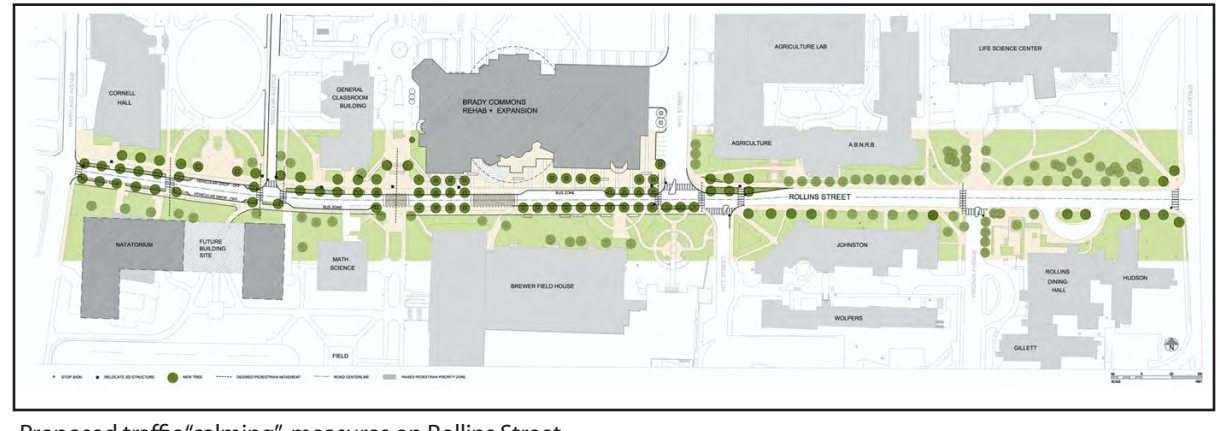
A study under way of pedestrian and vehicle circulation and parking constitutes a separate component of campus planning. Improving pedestrian safety, accessing various campus areas, and determining the impact of proposed buildings on pedestrian and vehicular circulation are objectives of the study. A prominent result has been an extensive examination of areas of major congestion and proposed traffic-calming modifications to Rollins Street between Maryland Avenue and Hitt Street, the most heavily congested roadway on campus.

Vehicle Parking

The development of new campus parking structure sites and street changes is accomplished in accordance with principles established in a 1990 study:

1. Locating campus parking within a reasonable walking distance of significant destinations
2. Locating parking structures about the central campus perimeter, thereby lessening the existing pedestrian/vehicle conflict caused by extensive surface parking
3. Locating major parking facilities that can be directly or indirectly accessed by major arterials or collector streets
4. Erecting facilities of sufficient size and in sufficient number where the likelihood of the continual availability of parking spaces is maintained
5. Proactively managing campus parking so that construction and operating costs of parking structures are borne by parking fees

A seventh parking structure is proposed in the Southeast Gateway area near University Hospital. The most recent addition was that of the Virginia Avenue Parking Structure serving the Health Sciences and Central Campus area.



Proposed traffic "calming" measures on Rollins Street.

Potential for Future Development & Expansion

Major acquisitions of land in 1839 (264 acres), 1870 (640 acres) and 1955 (450-plus acres) essentially defined the outer perimeters of the 1,360-plus acre campus as it exists today.

The aquisition and closing of Lowry Street created a pedestrian mall and campus corridor in the heart of campus.

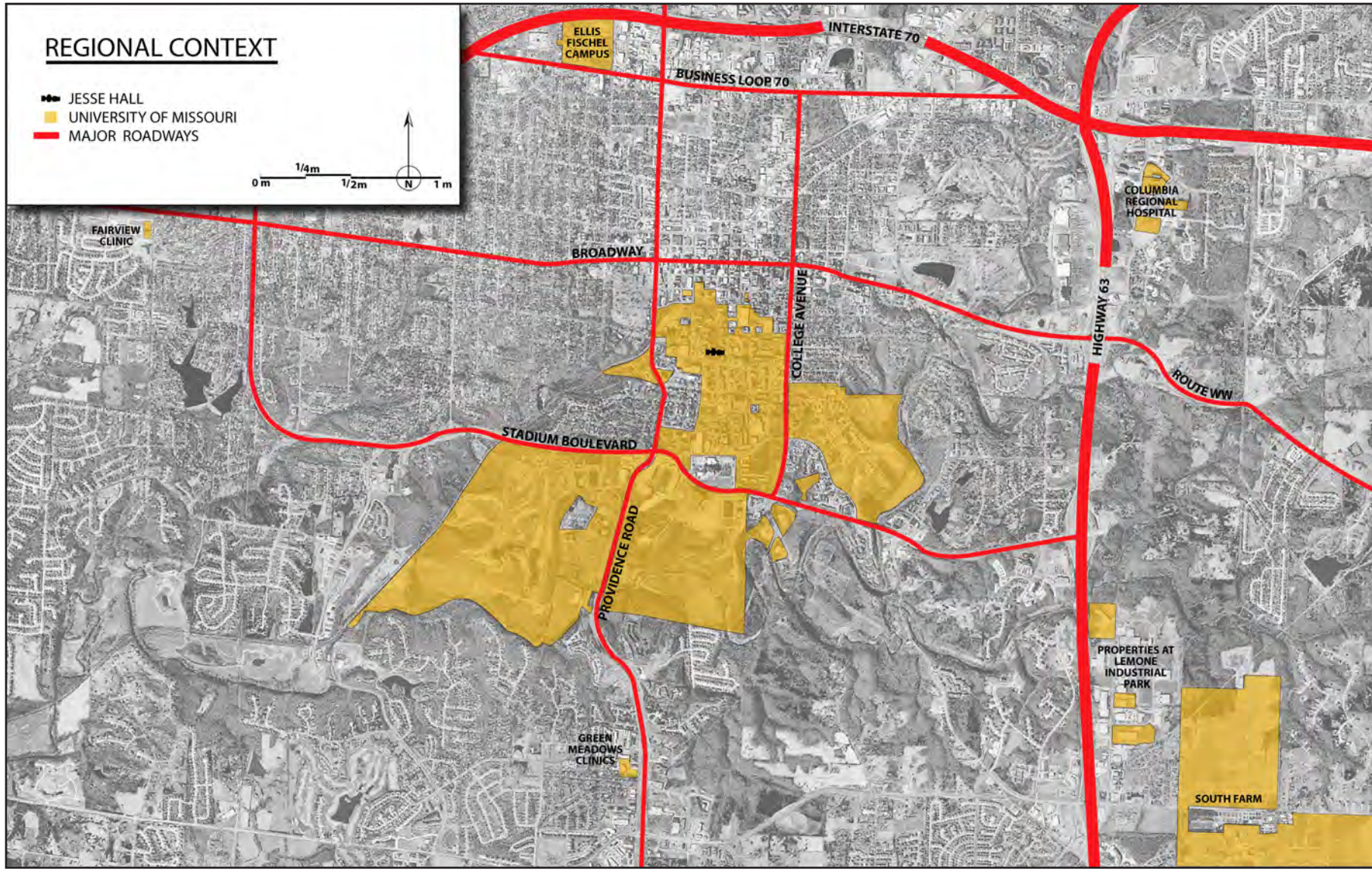
These early acquisitions and subsequent smaller purchases did not result in or retain the contiguity of today's campus. As the campus grew, extensions of the university from the Francis Quadrangle area initially spread east and south to encompass private residences and business properties that existed within the campus. Further purchases over time of private land were necessary to accommodate the growth of MU's academic colleges, professional schools, departments, research and administrative facilities, thus necessarily extending and spreading university functions to the south, southwest and north.

Phenomenal growth in the late 1940s, 1950s and 1960s, toward earlier-established outer-campus perimeters, resulted in campus sprawl.

In 1980 the MU Campus Master Plan was implemented, the purpose of which was to functionally and aesthetically integrate, unify and beautify the campus. A concerted effort was begun on planning the aggregate of the campus, which necessitated the purchase of properties to make the campus functionally and aesthetically whole.

Formal green space, such as Carnahan Quadrangle, above, has been created over the past two decades by aquisition of private buildings and redevelopment of the land.

Campus Planning Maps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COLLEGE AVENUE
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PROPERTIES AT LEMONE INDUSTRIAL PARK
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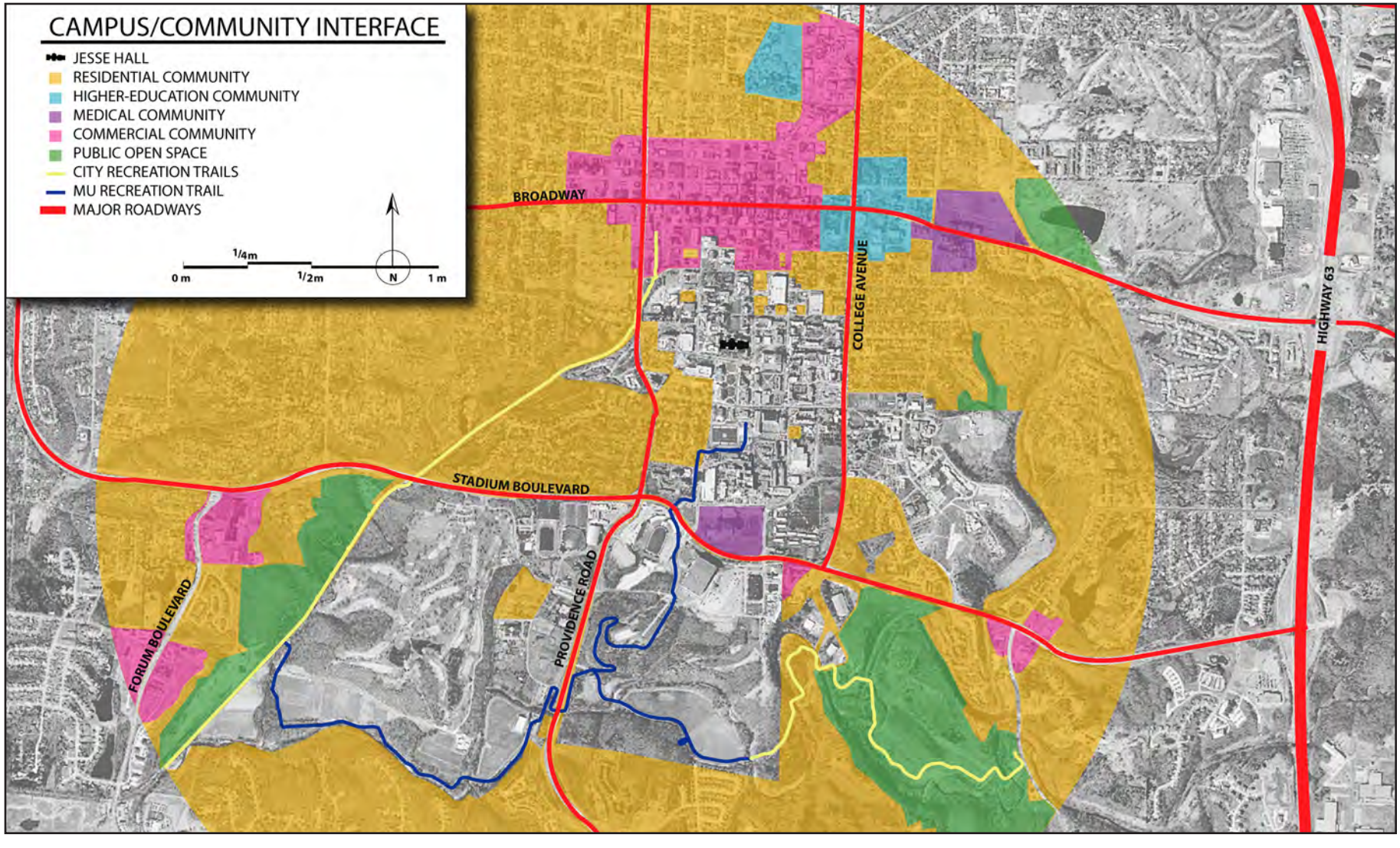
SOUTH FARM

Figure A


CAMPUS/COMMUNITY INTERFACE
JESSE HALL
RESIDENTIAL COMMUNITY
HIGHER-EDUCATION COMMUNITY
MEDICAL COMMUNITY
COMMERCIAL COMMUNITY
PUBLIC OPEN SPACE
CITY RECREATION TRAILS
MU RECREATION TRAIL
MAJOR ROADWAYS
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1/4m
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COLLEGE AVENUE
HIGHWAY 63
STADIUM BOULEVARD
PROVIDENCE ROAD
FORUM BOULEVARD

Figure B

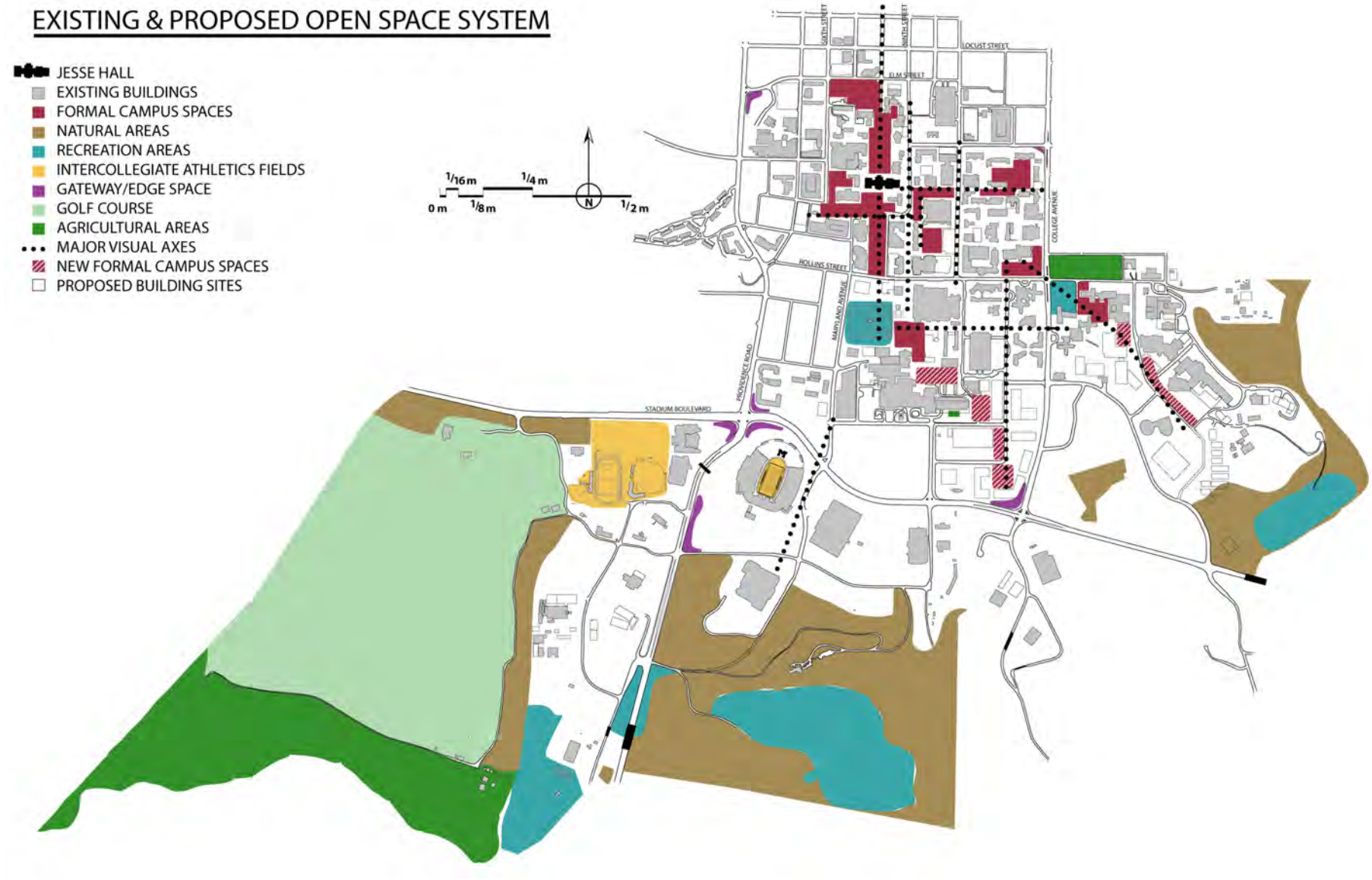
EXISTING & PROPOSED OPEN SPACE SYSTEM
JESSE HALL
EXISTING BUILDINGS
FORMAL CAMPUS SPACES
NATURAL AREAS
RECREATION AREAS
INTERCOLLEGIATE ATHLETICS FIELDS
GATEWAY/EDGE SPACE
GOLF COURSE
AGRICULTURAL AREAS
MAJOR VISUAL AXES
NEW FORMAL CAMPUS SPACES
PROPOSED BUILDING SITES
0 m
1/8 m
1/16 m
1/4 m
1/2 m
N
SIXTH STREET
NINTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARY ANN AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD

Figure C

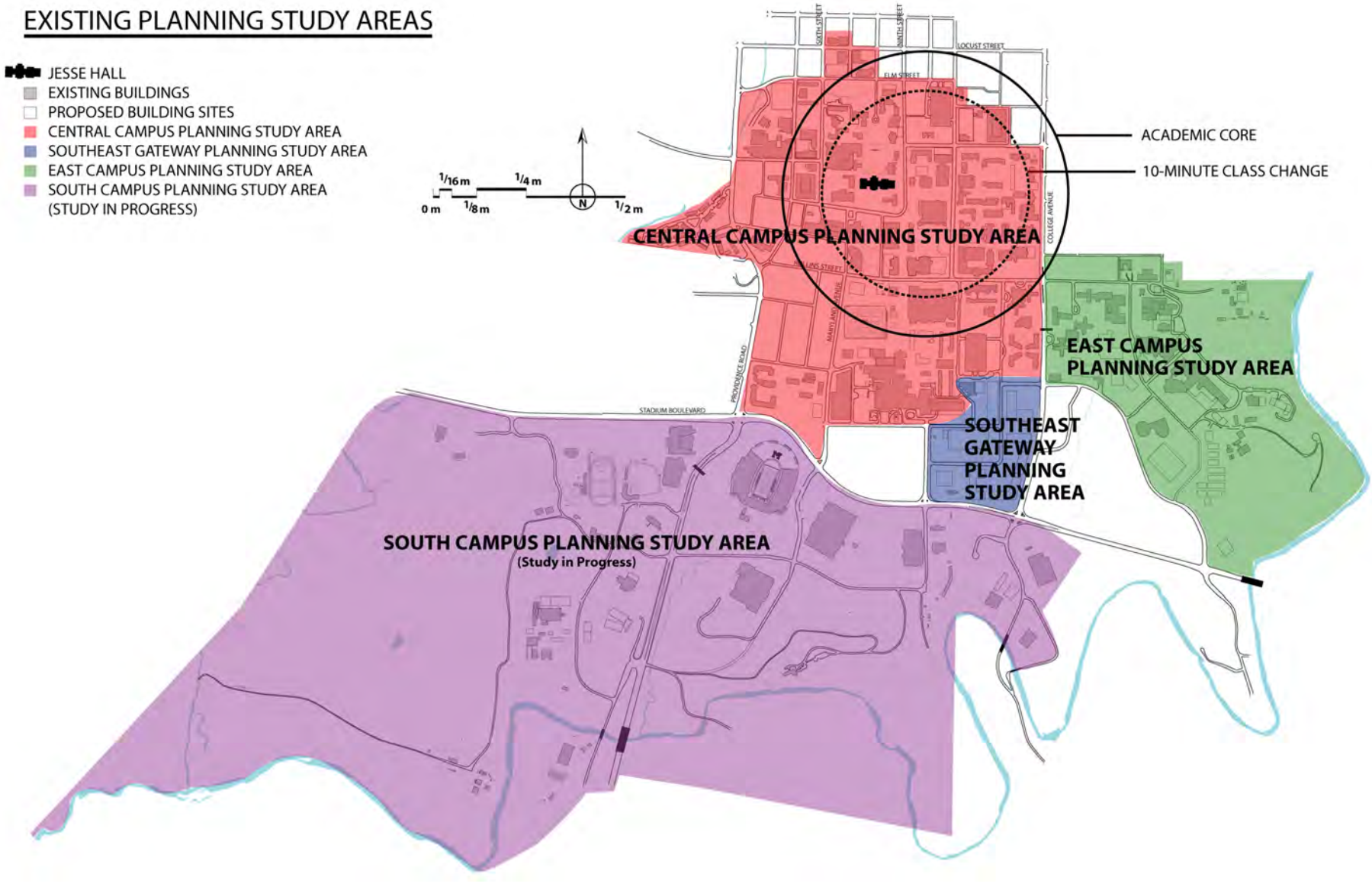
EXISTING PLANNING STUDY AREAS
JESSE HALL
EXISTING BUILDINGS
PROPOSED BUILDING SITES
CENTRAL CAMPUS PLANNING STUDY AREA
SOUTHEAST GATEWAY PLANNING STUDY AREA
EAST CAMPUS PLANNING STUDY AREA
SOUTH CAMPUS PLANNING STUDY AREA
(STUDY IN PROGRESS)
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N
ACADEMIC CORE
10-MINUTE CLASS CHANGE
CENTRAL CAMPUS PLANNING STUDY AREA
EAST CAMPUS
PLANNING STUDY AREA
SOUTHEAST
GATEWAY
PLANNING
STUDY AREA
SOUTH CAMPUS PLANNING STUDY AREA
(Study in Progress)
LOCUST STREET
ELM STREET
SIXTH STREET
SEVENTH STREET
COLLEGE AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD

Figure D

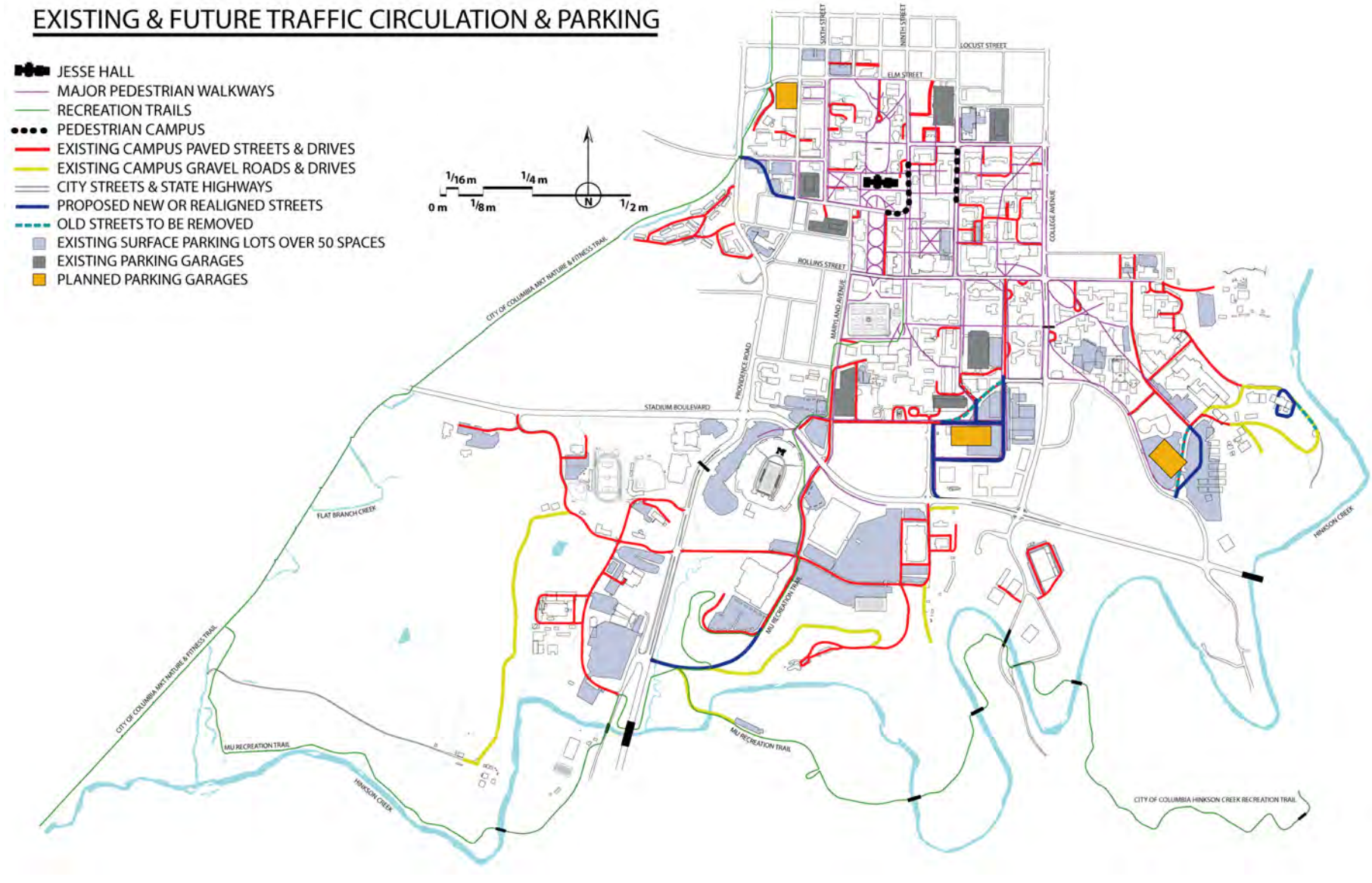
EXISTING & FUTURE TRAFFIC CIRCULATION & PARKING
JESSE HALL
MAJOR PEDESTRIAN WALKWAYS
RECREATION TRAILS
PEDESTRIAN CAMPUS
EXISTING CAMPUS PAVED STREETS & DRIVES
EXISTING CAMPUS GRAVEL ROADS & DRIVES
CITY STREETS & STATE HIGHWAYS
PROPOSED NEW OR REALIGNED STREETS
OLD STREETS TO BE REMOVED
EXISTING SURFACE PARKING LOTS OVER 50 SPACES
EXISTING PARKING GARAGES
PLANNED PARKING GARAGES
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N
SIXTH STREET
NINTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARYLAND AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD
CITY OF COLUMBIA MKT NATURE & FITNESS TRAIL
FLAT BRANCH CREEK
MU RECREATION TRAIL
HINKSON CREEK
CITY OF COLUMBIA HINKSON CREEK RECREATION TRAIL

Figure E

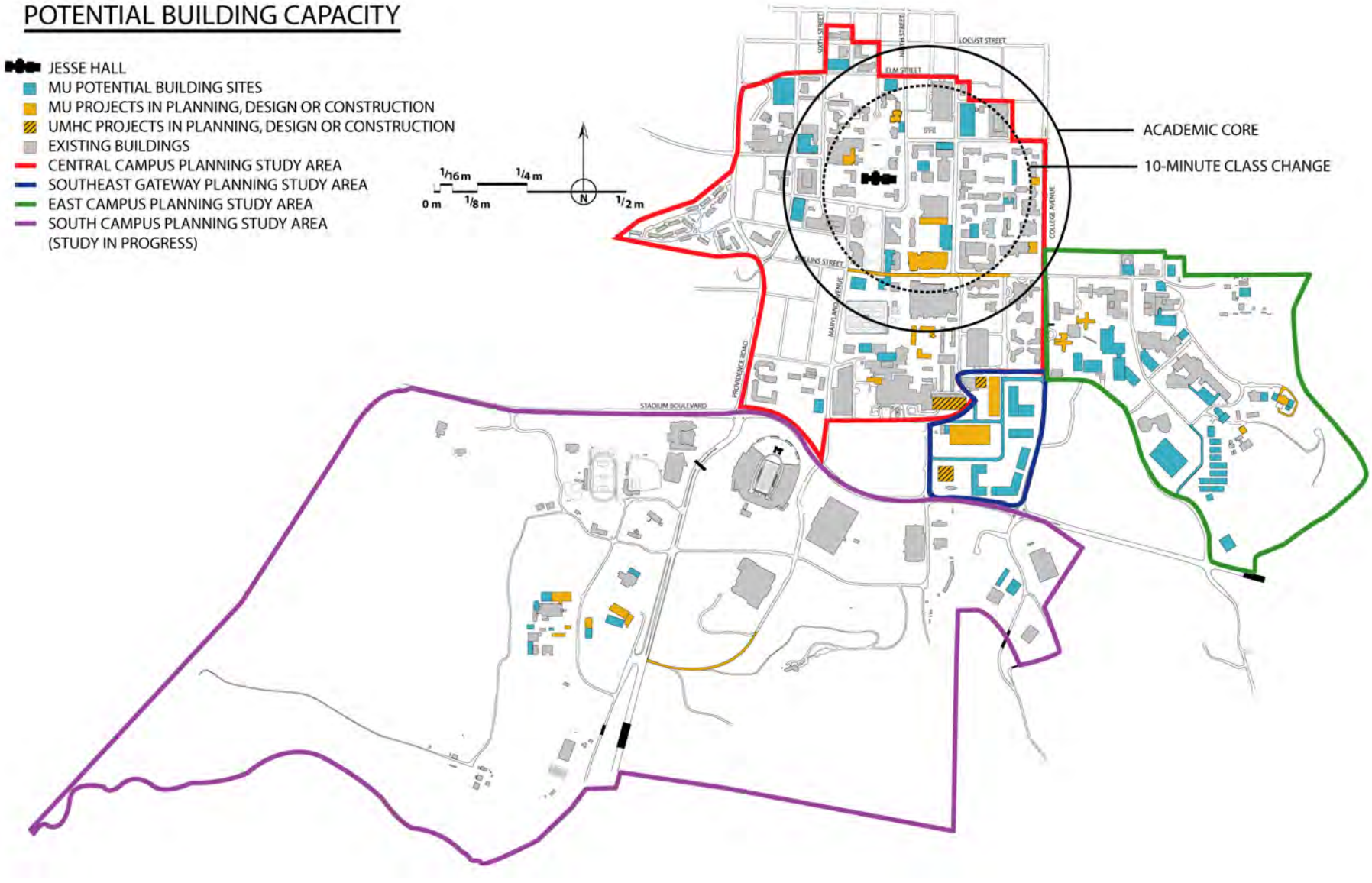
POTENTIAL BUILDING CAPACITY
JESSE HALL
MU POTENTIAL BUILDING SITES
MU PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
UMHC PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
EXISTING BUILDINGS
CENTRAL CAMPUS PLANNING STUDY AREA
SOUTHEAST GATEWAY PLANNING STUDY AREA
EAST CAMPUS PLANNING STUDY AREA
SOUTH CAMPUS PLANNING STUDY AREA
(STUDY IN PROGRESS)
0 m
1/8 m
1/4 m
1/2 m
N
ACADEMIC CORE
10-MINUTE CLASS CHANGE
LOCUST STREET
ELM STREET
COLLEGE AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD

Figure F

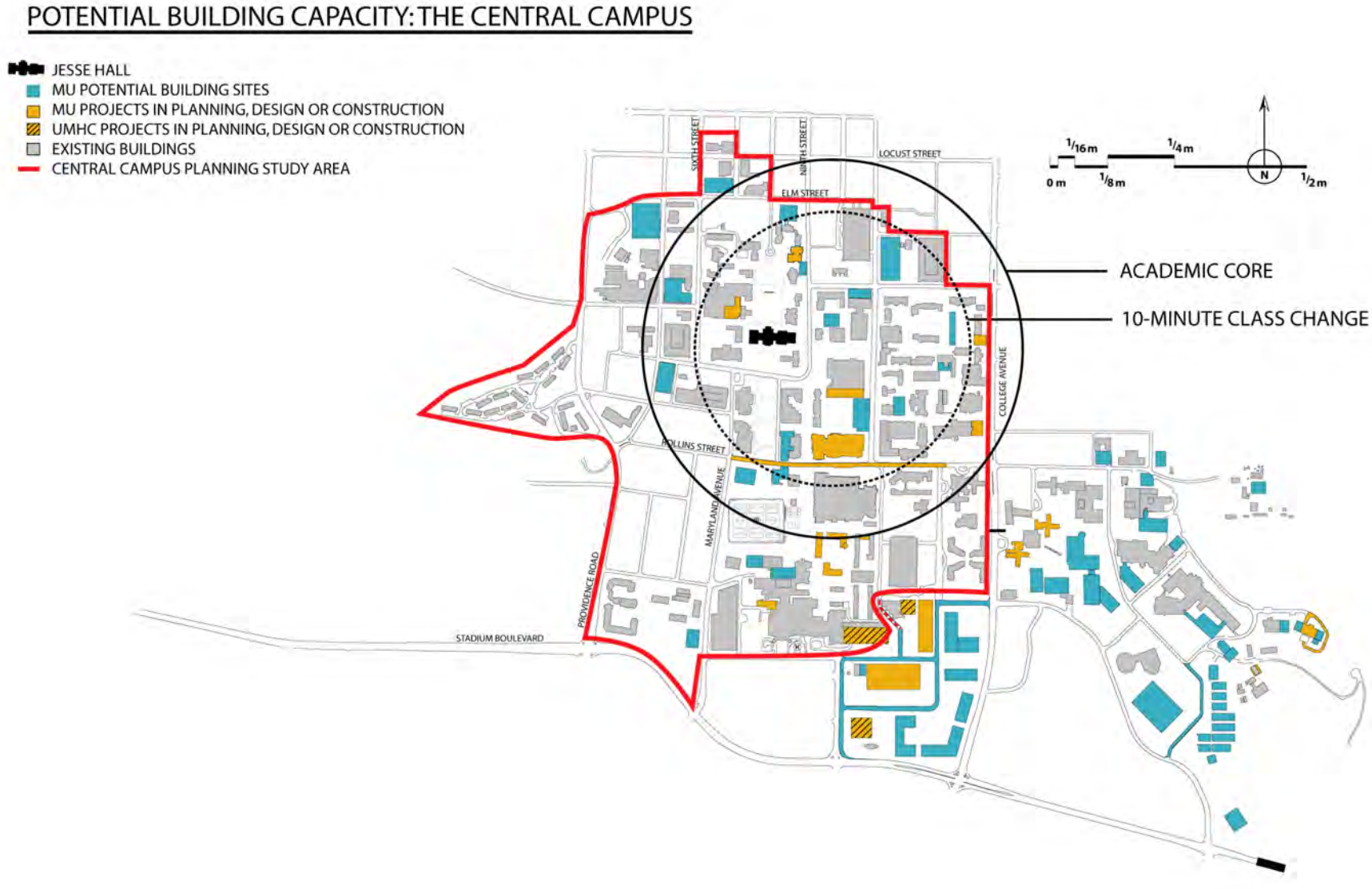
POTENTIAL BUILDING CAPACITY: THE CENTRAL CAMPUS
JESSE HALL
MU POTENTIAL BUILDING SITES
MU PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
UMHC PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
EXISTING BUILDINGS
CENTRAL CAMPUS PLANNING STUDY AREA
ACADEMIC CORE
10-MINUTE CLASS CHANGE
SIXTH STREET
NINTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARYLAND AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N

Figure F-1

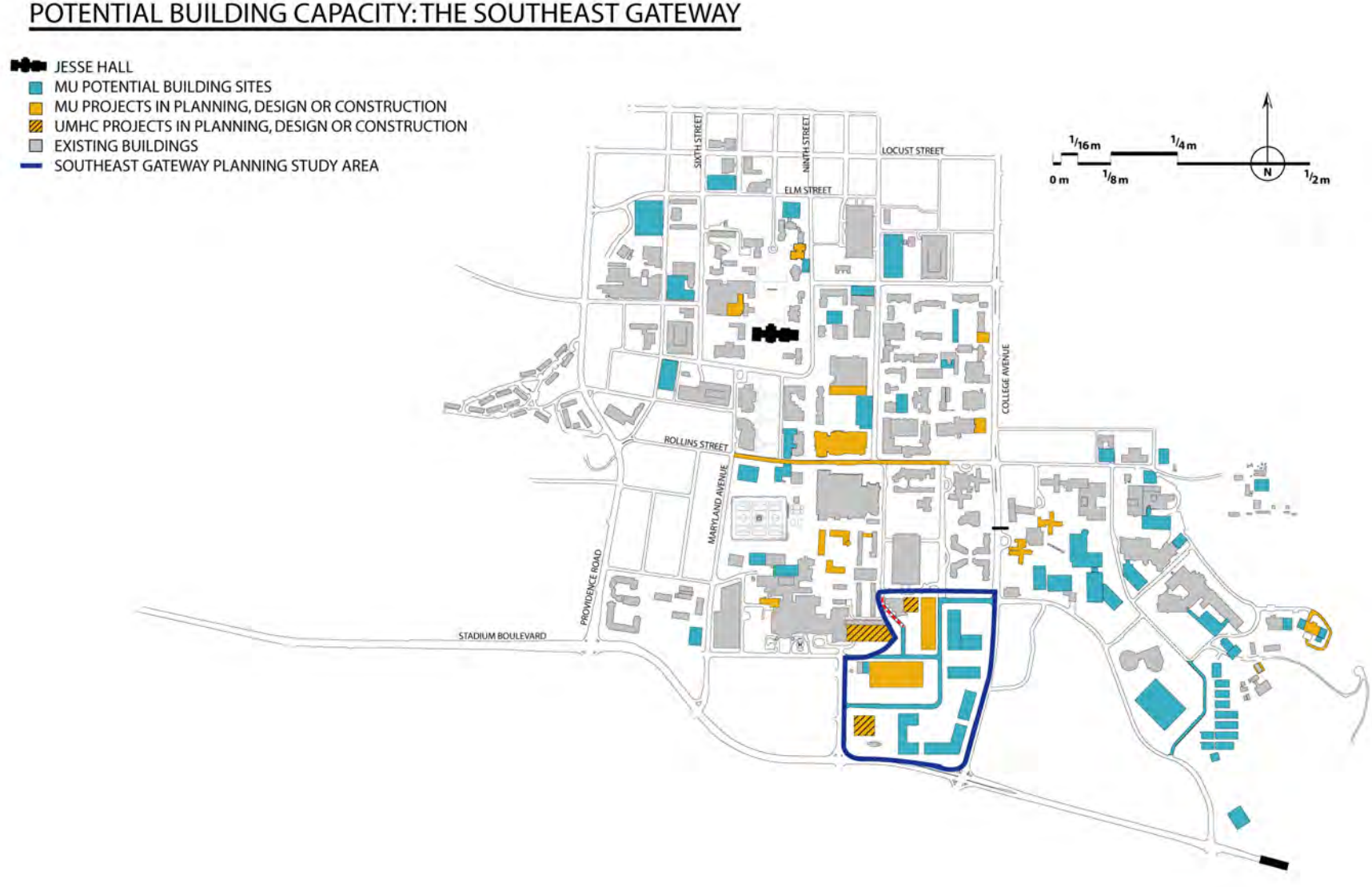
POTENTIAL BUILDING CAPACITY: THE SOUTHEAST GATEWAY
JESSE HALL
MU POTENTIAL BUILDING SITES
MU PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
UMHC PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
EXISTING BUILDINGS
SOUTHEAST GATEWAY PLANNING STUDY AREA
SIXTH STREET
NINTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARYLAND AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD
1/16 m
1/4 m
0 m
1/8 m
1/2 m
N

Figure F-2

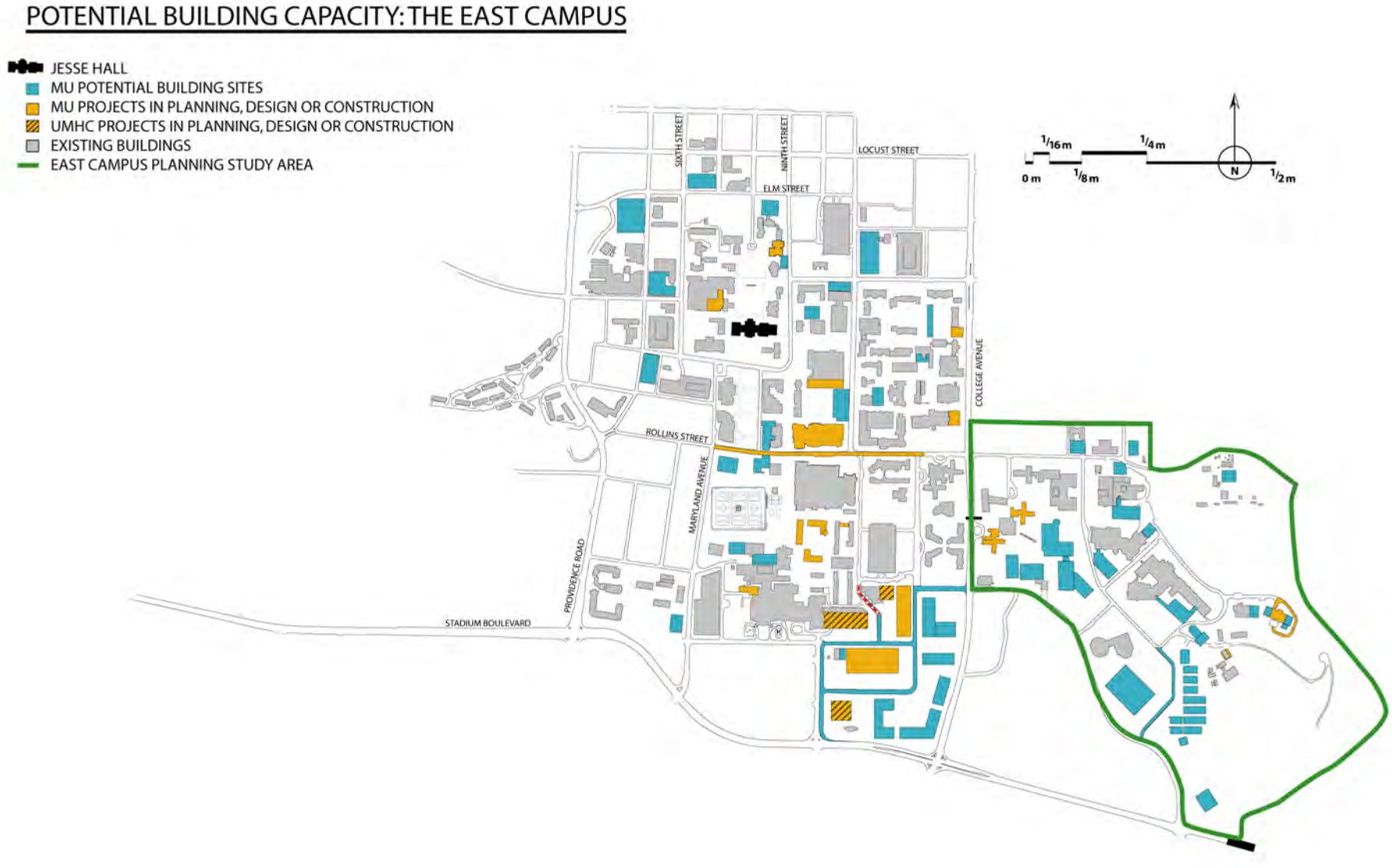
POTENTIAL BUILDING CAPACITY: THE EAST CAMPUS
JESSE HALL
MU POTENTIAL BUILDING SITES
MU PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
UMHC PROJECTS IN PLANNING, DESIGN OR CONSTRUCTION
EXISTING BUILDINGS
EAST CAMPUS PLANNING STUDY AREA
SIXTH STREET
NINTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARYLAND AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N

Figure F-3

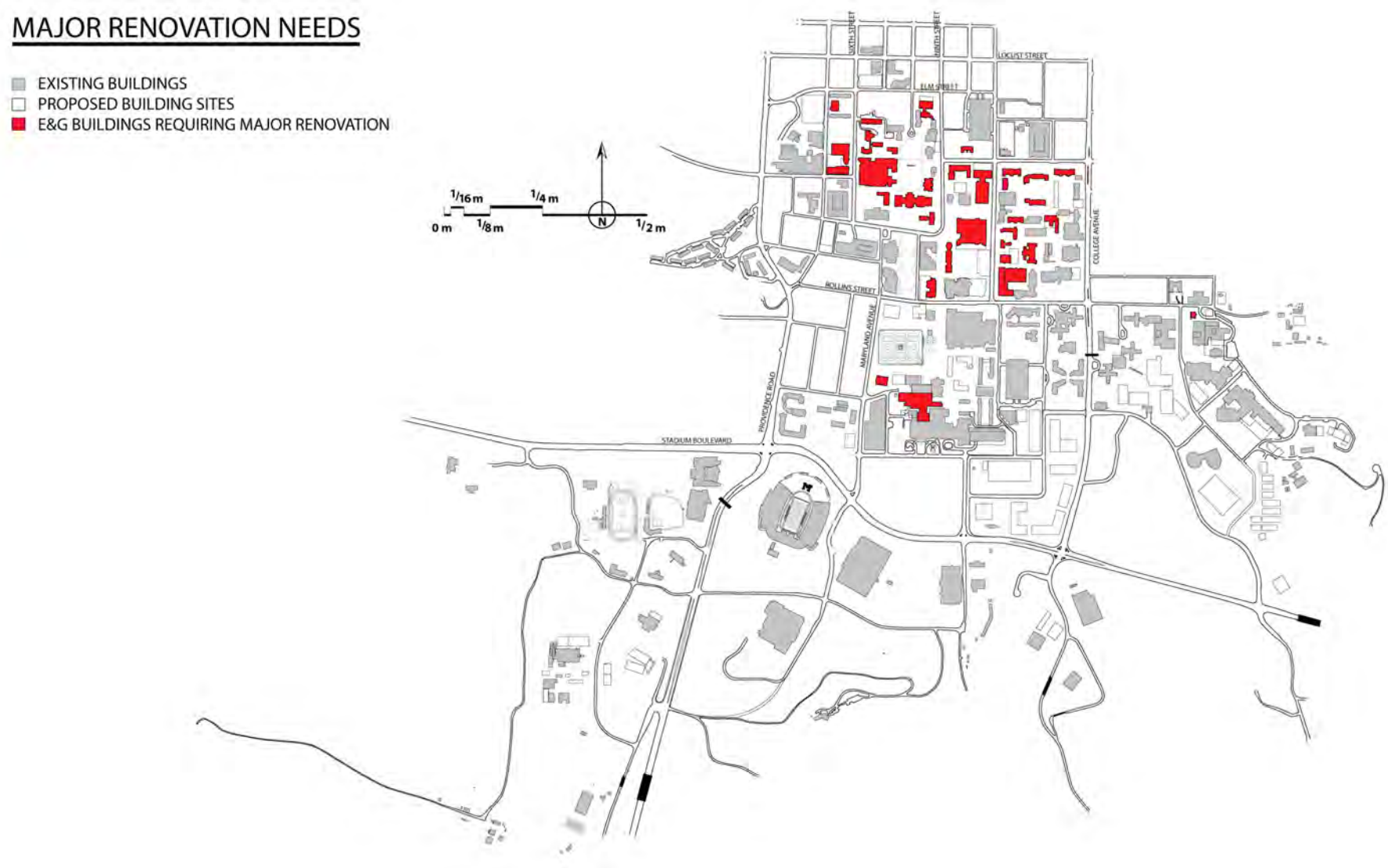
MAJOR RENOVATION NEEDS
EXISTING BUILDINGS
PROPOSED BUILDING SITES
E&G BUILDINGS REQUIRING MAJOR RENOVATION
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARYLAND AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD

Figure G

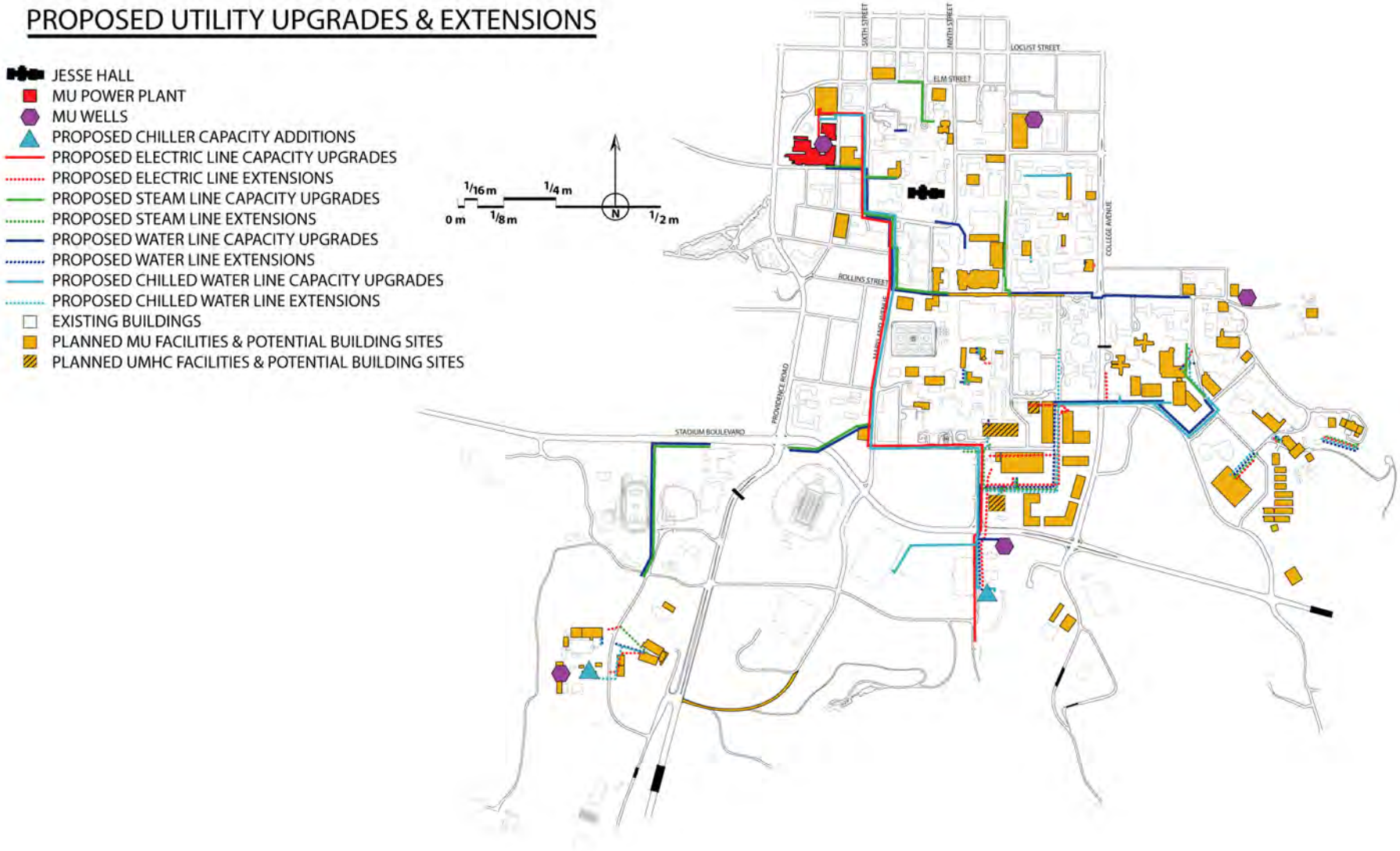
PROPOSED UTILITY UPGRADES & EXTENSIONS
JESSE HALL
MU POWER PLANT
MU WELLS
PROPOSED CHILLER CAPACITY ADDITIONS
PROPOSED ELECTRIC LINE CAPACITY UPGRADES
PROPOSED ELECTRIC LINE EXTENSIONS
PROPOSED STEAM LINE CAPACITY UPGRADES
PROPOSED STEAM LINE EXTENSIONS
PROPOSED WATER LINE CAPACITY UPGRADES
PROPOSED WATER LINE EXTENSIONS
PROPOSED CHILLED WATER LINE CAPACITY UPGRADES
PROPOSED CHILLED WATER LINE EXTENSIONS
EXISTING BUILDINGS
PLANNED MU FACILITIES & POTENTIAL BUILDING SITES
PLANNED UMHC FACILITIES & POTENTIAL BUILDING SITES
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N
SIXTH STREET
MYRTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
PROVIDENCE ROAD
STADIUM BOULEVARD

Figure H

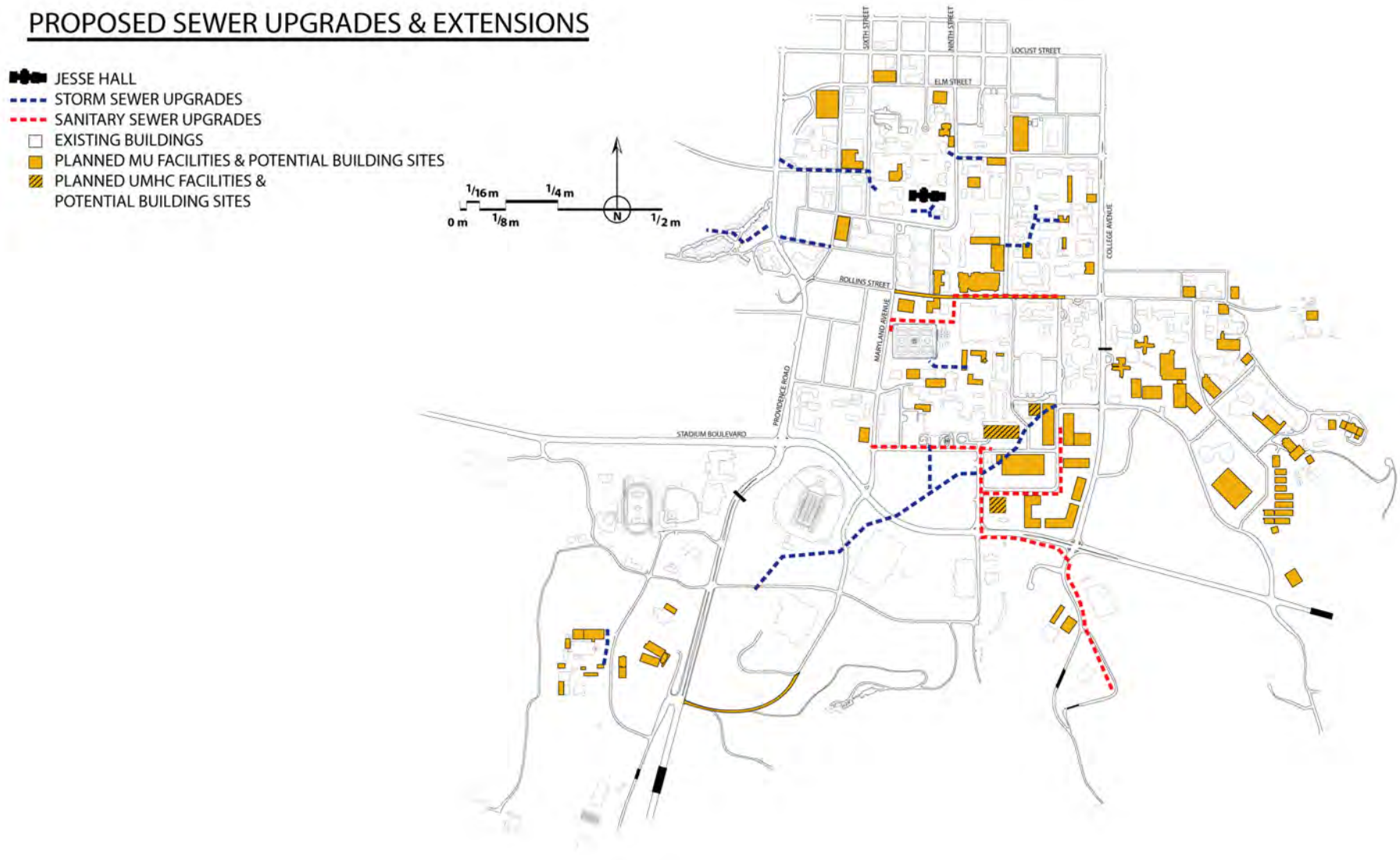
PROPOSED SEWER UPGRADES & EXTENSIONS
JESSE HALL
STORM SEWER UPGRADES
SANITARY SEWER UPGRADES
EXISTING BUILDINGS
PLANNED MU FACILITIES & POTENTIAL BUILDING SITES
PLANNED UMHC FACILITIES & POTENTIAL BUILDING SITES
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N
SIXTH STREET
NINTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARYLAND AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD

Figure I

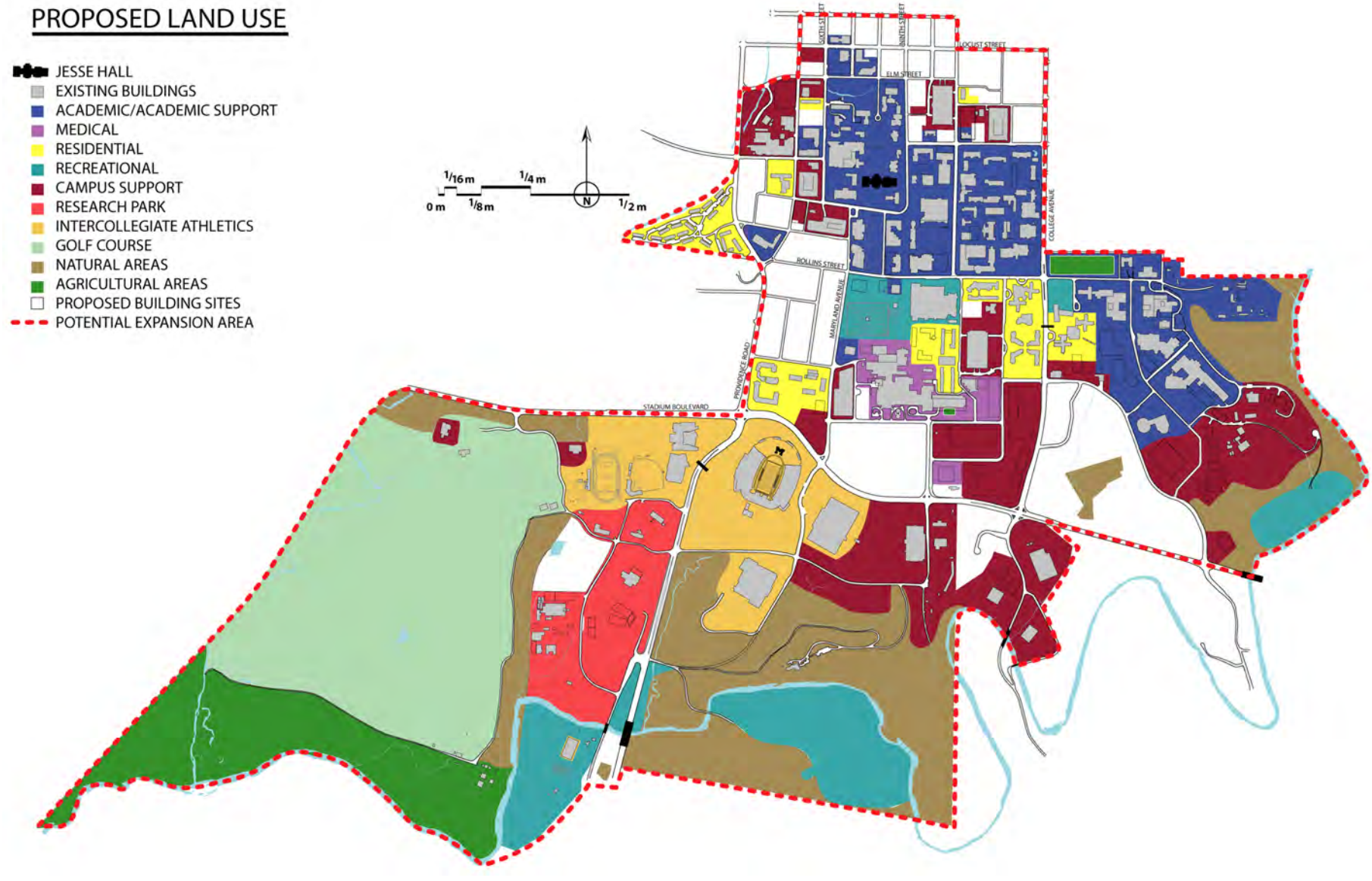
PROPOSED LAND USE
JESSE HALL
EXISTING BUILDINGS
ACADEMIC/ACADEMIC SUPPORT
MEDICAL
RESIDENTIAL
RECREATIONAL
CAMPUS SUPPORT
RESEARCH PARK
INTERCOLLEGIATE ATHLETICS
GOLF COURSE
NATURAL AREAS
AGRICULTURAL AREAS
PROPOSED BUILDING SITES
POTENTIAL EXPANSION AREA
0 m
1/16 m
1/8 m
1/4 m
1/2 m
N
SIXTH ST
NINTH STREET
LOCUST STREET
ELM STREET
COLLEGE AVENUE
ROLLINS STREET
MARY AND AVENUE
PROVIDENCE ROAD
STADIUM BOULEVARD

Figure J

"For a successful total campus … [building projects and parking] should be developed within a strong, handsome sequence of major open spaces and of major cross-campus pedestrian ways. Mizzou's system of quadrangles, courtyards, malls and playing fields can be linked, improved and extended to help unify the total campus."

Jack Robinson
MU Campus Master Planning Consultant
1981-1997

"Connection is the hallmark of great campuses. It is the creation of spaces that induce people to gather and interact in a collegial way. It is the linkage of open spaces that works to unify the campus fabric. Academic, residential and social functions are tied together by inviting pedestrian passages that enhance campus vitality and intellectual exchange."

M. Perry Chapman
MU Campus Master Planning Consultant
1999 - present

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