MICHIGAN STATE
UNIVERSITY

November 30, 2011

MEMORANDUM

To: Trustee Finance Committee

From: Fred L. Poston

Subject: Campus Master Plan Update 2011

RECOMMENDATION

BE IT RESOLVED that the Trustee Finance Committee recommends that the Board of Trustees adopt the Campus Master Plan Update 2011 (as attached) including changes to the Campus Planning Principles, Land Use Recommendations, and University Zoning Ordinance.

BACKGROUND

The Campus Master Plan provides a flexible framework for guiding the physical organization of the campus. Primary components of the Campus Master Plan include the Campus Planning Principles, Land Use Recommendations, and University Zoning Ordinance. The Campus Master Plan is updated every five years to address changing land use needs and regulatory requirements.

The Campus Planning Principles provide an overarching set of goals and values that guide the planning and design for future physical change on campus. The principles are organized within the following categories: General, Land Use and Facilities, Environmental Sustainability, Open Space, Parking, Circulation, and Utility/Service Infrastructure.

The Land Use Recommendations provide a vision for organizing programs and facilities, open space and landscape, and circulation. They represent opportunities for assimilating growth and change, but do not mandate either one.

The University Zoning Ordinance sets standards for organizing land uses, the density of campus development, the dimensional limits of buildings and the protection of important open space/landscape resources.

Approval of the Campus Master Plan Update 2011 including the Campus Planning Principles, Land Use Recommendations, and University Zoning Ordinance will provide planning parameters for shaping future university infrastructure needs.

cc: Trustee policy Committee, D. Bollman, J. Kacos, W. Latta, K. Lindahl, S. Troost

OFFICE OF THE
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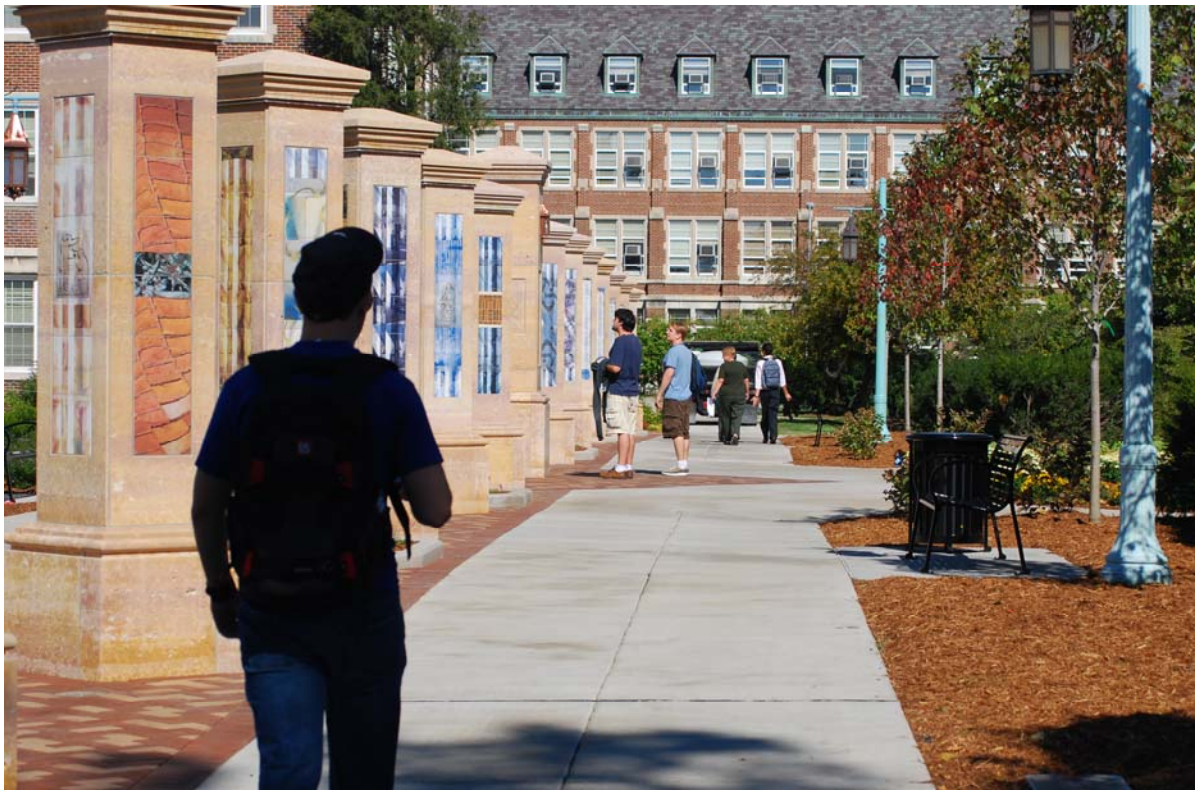
Michigan State University

Campus Master Plan Update 2011



December 2011

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PREFACE

PURPOSE OF THE CAMPUS MASTER PLAN

The Campus Master Plan provides a flexible framework for guiding the physical organization of the Michigan State University (MSU) campus. The plan is updated every five years to provide the university administration with a current and relevant decision making tool. This tool includes overarching Campus Planning Principles, specific system recommendations, and the University Zoning Ordinance.

In addition to the Campus Master Plan, numerous planning documents are required to guide campus development. These documents should be referenced during all planning and design efforts, and include but are not limited to:

- Capital Outlay Request
- Just-in-Time Priorities
- Residential and Hospitality Services Strategic Plan
- Utility Master Plans
- Storm Water Master Plan
- ADA 2010 Transition Plan
- Energy Transition Plan

UPDATE PARAMETERS AND PROCESS

While refreshed from cover to cover, major changes incorporated in the Campus Master Plan – Update 2011 include an expanded section on open space and landscape recommendations, incorporation of a new mixed-use classification to the University Zoning Ordinance, and various updates to the Campus Planning Principles providing a stronger sustainable ethos.

The following resources and initiatives were utilized to update the Campus Master Plan:

- The process to update the Campus Master Plan was initiated at the November 2010 Board of Trustees joint work session.
- Programmatic and facility priorities were compiled by the Office of Facilities Planning and Space Management in alignment with the university's Capital Outlay Request SFY13 for the State of Michigan.
- Campus planning recommendations were developed by technical teams were reviewed and assimilated into the update by a steering committee comprised of faculty, staff, and student representatives.
- Numerous public forums enabled input from both on- and off-campus constituencies.
- Four public open houses were held in May and September 2011.
- A web site was established for posting draft material and facilitating public comment at www.masterplan.msu.edu.
- The Board of Trustees were briefed and provided input at their June 2011 retreat, and a joint work session in October 2011.

MAJOR ACCOMPLISHMENTS SINCE THE 2007 UPDATE

Over the past five years, the Campus Master Plan – Update 2007 guided the accomplishment of the following:

- Major building projects completed or under construction include: Wells Hall Addition, Cyclotron Office and High Bay Addition, Research Complex Engineering Expansion, Eli & Edythe Broad Art Museum, Bott Building for Nursing Education & Research, Plant Sciences Addition, Skandalaris Football Center, Wharton Center Expansion, MSU Surplus Store & Recycling Center, and FRIB (Facility for Rare Isotope Beams. Overall, new campus construction totaled approximately 1.0 million GSF (gross square feet).
- Completion of the Farm Lane Underpass project.
- Close adherence to the University Zoning Ordinance, with only 7 projects requiring a zoning variance.
- Compliance with the Campus Planning Principles addressing smart growth (i.e., maximizing the utilization of university land and conserving resources through compact campus development). Representative projects include the Wells Hall, Plant Sciences, and Cyclotron Office Additions.
- Five major enhancements to the campus open space system including: 1) the George J. and Sally A. Perles Plaza, 2) new residential open space north of Snyder Phillips Hall, 3) new academic open space north of Kedzie Hall, 4), reclaimed river floodplain through the demolition of University Village Apartments, and 5) a diverse collection of high-quality sculptures through the Public Art on Campus program.
- Receipt of a Bronze Bicycle Friendly University Award from the League of American Bicyclists. Today more than 50% of campus roads have bike lanes.
- Numerous advancements to the campus' storm water management techniques including approval for an alternative approach to post-construction storm water controls by the MDEQ (Michigan Department of Environmental Quality) that will improve campus-wide Clean Water Act compliance.
- Receipt of the Governor's Traffic Safety Advisory Commission's Richard H. Austin 2006 Outstanding Contributions to Traffic and Safety Award. Traffic accidents continue to decline primarily resultant from the removal of on-street parking and the Wilson Road traffic circles. Traffic accidents have been reduced by 30% since 2001.

CAMPUS PLANNING PRINCIPLES

INTRODUCTION

The university is committed to a comprehensive and continuous land use planning process that results in a flexible framework to guide future decision making. The university will consider the use of resources from an environmental, regulatory, operational, economic, historic and cultural perspective in support of its teaching, research, and outreach mission.

The following planning principles will guide future planning for, and development, on the Michigan State University campus. The principles are organized in the following categories: General Principles, Land Use and Facilities, Environmental Sustainability, Open Space, Parking, Circulation, and Utility Infrastructure.

GENERAL PRINCIPLES

- Arrange the campus' buildings, open space, circulation and utility systems to:
  - establish positive interactions between academic, research, outreach, cultural, and operational activities;
  - protect and strengthen the campus as a living-learning resource integral to the university's mission;
  - protect and enhance its aesthetic beauty;
  - enhance environmental stewardship;
  - minimize energy impacts and increase/retain energy efficiencies; and,
  - optimize safety and risk management.

PLANNING PRINCIPLES RELATED TO LAND USE AND FACILITIES

- Organize the campus in logical districts of compatible land uses.

- Implement compact campus development to achieve the following benefits:
  - preserve and protect existing natural areas and systems to support teaching and research;
  - conserve land and maximize land productivity;
  - protect contiguous agricultural teaching and research land;
  - encourage social interactions and vitality;
  - encourage collaboration, partnering, and interdisciplinary connections;
  - reinforce ties between research and undergraduate teaching;
  - control utility, transportation, parking, and infrastructure costs;
  - enhance functional efficiencies;
  - maximize efficient energy use; and,
  - minimize utility distribution extensions, which are less efficient and more costly to maintain.

- Provide intramural recreation fields in locations that balance accessibility for both on- and off-campus participants.

- Protect and enhance campus open space providing an appropriate balance (qualitative and quantitative) to the built environment.

- Protect the land south of Mount Hope Road from development to support the College of Agriculture and Natural Resources' teaching, research, and outreach mission.

- Favor reuse, renovation, and repurposing existing buildings after carefully assessing programmatic alignment, functionality, long-term Just-In-Time (JIT) maintenance needs, historic significance, location, energy efficiency, and replacement costs.

- Organize the arrangement and design of campus buildings and exterior spaces to encourage human interaction and foster a sense of shared community among the university's diverse population. This may include, for example, incorporating "transitional spaces" outside of classrooms for pre- and post-class collaboration and "blended spaces" where food service, study space, and general meeting resources coexist.

- Design new buildings and renovations to be architecturally compatible with the best features of existing adjacent buildings and to be harmonious with their contextual surroundings.

- Maximize flexibility in the design of new and renovated space to accommodate changing needs and functions over time.

- Recognize historically significant aspects of the campus and the heritage of the campus as a park and as a living and learning laboratory.

- Acknowledge that the campus is part of the larger surrounding community. Build compatible land use relationships and circulation patterns.

- Consolidate support service facilities into the Services District as defined by the University Zoning Ordinance.

- Organize land uses, facilities, and infrastructure to encourage physical activity.

PLANNING PRINCIPLES RELATED TO ENVIRONMENTAL SUSTAINABILITY

- Minimize environmental impacts and maximize resource conservation through prudent and compact land use, protection of sensitive environmental systems, and by incorporating low-impact development guidelines.

- Minimize negative impacts to the water quality of the Red Cedar River Watershed; incorporate Best Management Practices for storm water.

- Acknowledge the intrinsic value of biodiversity and enhance natural system integrity by creating, restoring, and maintaining large block natural areas and improving their interconnections.

- Provide a suite of transportation options that maximize the movement of people and minimize the movement of cars thus reducing vehicle miles traveled and greenhouse gas emissions.

- Minimize greenhouse gas emissions

- Continuously pursue building and utility systems that encourage the use of renewable resources and decreases the production of waste and hazardous materials.

PLANNING PRINCIPLES RELATED TO OPEN SPACE

- Protect and extend the park-like character of the historic Circle Campus in order to reinforce and enhance the university's distinctive physical identity.
- Enhance the landscape quality south of the Red Cedar River.
- Promote efficient land use that protects existing, and creates new, green space.
- Protect, maintain, and develop the campus as an arboretum to support the university's teaching, research, and outreach mission.
- Provide opportunities for academic and social interaction.
- Provide a variety of open spaces that accommodate the full range of outdoor activity, for example, large athletic fields to intimate spaces for personal reflection and meditation.
- Preserve and protect existing natural areas and enhance their interconnectivity.
- Integrate public art appropriate to surrounding context (excluding Natural Areas).

PLANNING PRINCIPLES RELATED TO PARKING

- Safely and efficiently meet the parking needs of faculty, staff, students, and visitors.
- Integrate parking facilities into the campus setting in an aesthetically pleasing manner consistent with its park-like setting.
- Utilize a variety of parking resources including perimeter parking, surface lots and parking garages; emphasizing parking on the campus perimeter.
- Provide conveniently located barrier free spaces across campus.
- Reclaim surface lots for green space and future building sites when appropriate.
- Relocate parking that contributes to unsafe traffic and pedestrian conditions.
- Minimize the loss of open space for small, inefficient surface parking lots.
- Connect the campus transit system to major parking facilities.

PLANNING PRINCIPLES RELATED TO CIRCULATION

- Emphasize personal safety in the planning and design of the circulation system.
- Design all roads as complete streets (designed and operated to enable safe, attractive, and comfortable access and travel for all legal users).
- Provide a safe, efficient, and effective transportation network that enhances the overall quality of life on the campus.

- Incorporate traffic calming measures where appropriate.

- Plan and design for the following circulation priorities:
  - Pedestrians first;
  - bicycles and other forms of non-motorized transportation;
  - mass transit and service vehicles; and,
  - private vehicles last.

- Plan with the safety of persons with disabilities in mind.

- Reduce private vehicular traffic in the academic and residential districts.

- Effectively integrate with the regional transportation system.

- Establish a coordinated bicycle system including: bike lanes within roadways, dedicated pathways and/or shared-use pathways, and convenient and appropriately sized storage facilities where appropriate.

- Enable an effective and efficient mass transit system including developing neighborhood campus transit centers to gain transit efficiencies.

PLANNING PRINCIPLES RELATED TO UTILITY INFRASTRUCTURE

- Develop campus buildings and infrastructure to achieve efficient energy utilization.

- Use centralized utility systems wherever feasible to maximize production efficiencies and to minimize life-cycle operational costs

- Establish consolidated distribution corridors that co-locate utilities and accommodate maintenance with minimal campus disruptions.

- Provide adequate protection and security for critical system components.

- Provide redundancy for steam, electric, water, and communication utilities.

- Enable resource conservation and management through appropriate system design and controls.

- Prepare for developing technologies and their integration into the campus infrastructure

- Implement practices, install systems, and develop procedures that prolong the capacity of the power plant, increase reliability, protect health and wellness, and reduce greenhouse gas emissions while managing affordability.

LAND USE RECOMMENDATIONS

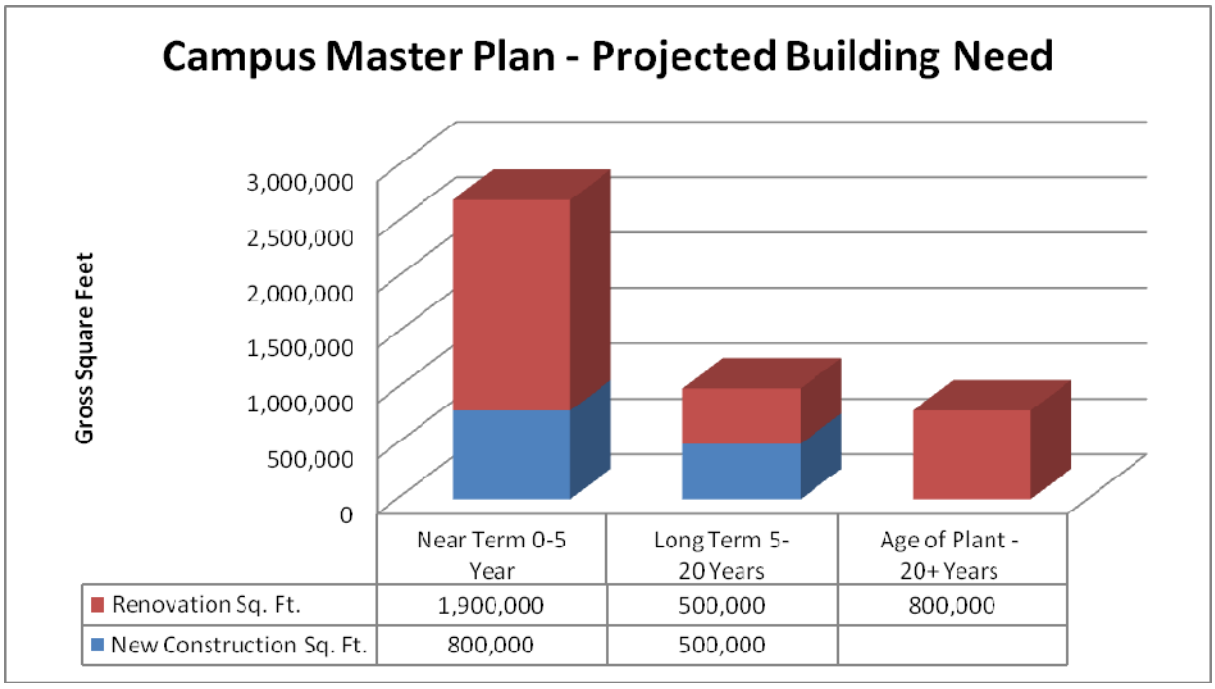
PROGRAMS AND FACILITIES

Projected Building Needs

Priority near-term needs (0-5 year planning horizon) emphasize the research enterprise and facilities that address academic and student support service needs. This is consistent with the university's strategic plan to grow sponsored research, its standing as a top research-intensive institution, and to support greater opportunities for engaged student learning and participation in research. The projects range from comprehensive renovation to new construction and building additions. It also includes significant renovation to a number of our campus residence halls consistent with the Residential and Hospitality Services Strategic Plan.

Longer-term projections (5-20 year planning horizon) are primarily based on estimated program growth or desired consolidation of support services. The projects range from comprehensive renovation to new construction and building additions. Another key factor in long-term planning is the fact that the university has an aging physical plant that will require investment in renovation of these existing facilities or consideration for demolition and replacement. The primary criteria for placement on this list are buildings constructed over 20 years ago with no major comprehensive renovations in the last 20 years.

In summary, the projected short-term building needs represent approximately 800,000 GSF (gross square feet) of new construction and 1.9 million GSF of potential renovations and alterations to existing facilities. The long-term building needs represent approximately 500,000 GSF of new construction, 500,000 GSF of potential renovations and alterations, and nearly 800,000 GSF associated with the aging physical plant.



The following is a more detailed presentation of projected building needs consistent with the Capital Outlay SFY13 submission to the State of Michigan and near term needs based on current program planning:

Project Name	Description	2011 GSF master plan	Building Type
Near Term (0-5 year planning horizon)			
Bio Engineering Facility	Construct building at South Campus for teaching and research program expansion and need	50,000	Academic
Greenhouse Expansion	Addition at South Campus range primarily for research	30,000	Academic
Plant Biology Building	Comprehensive renovation for teaching and research	190,000	Academic
Greenhouse Renovation	Select renovation of east/west greenhouses for teaching and research	176,000	Academic
Music Building Addition	Addition to existing building for program expansion and need	60,000	Academic
Music & Music Practice	Comprehensive renovation for improved program support	103,000	Academic
Chittenden Hall	Comprehensive renovation for the Graduate School	13,500	Academic
Natural Science Building	Comprehensive renovation for improved program support	251,000	Academic
Clinical Center B	Comprehensive renovation for research	77,000	Academic
Animal Care Facilities	Renovation and expansion for research support	97,000	Academic
Giltner Hall	Renovation and high priority maintenance for teaching and research	251,000	Academic
Erickson Hall	Vertical expansion for research expansion and need	19,000	Academic
Shaw Lane Power Plant	Comprehensive renovation for academic services support	43,000	Academic
Student Services Building	Comprehensive renovation for student support services	120,000	Academic
Engineering Research	Addition to building	51,000	Academic
Interdisciplinary Science & Technology	Construct building for interdisciplinary teaching and research expansion and need	225,000	Academic
Biological Safety Labs	Construct modular labs at South Campus for research	40,000	Academic
Data Center	Construct building for university operations	113,000	Support
MSU Health Team Facility	Construct building to support the delivery of patient services	160,000	Academic
Chilled Water Plant	Support cooling needs of future south academic development	20,000	Support
Cyclotron Phase III	Construct addition for FRIB program need	55,000	Academic
Armstrong Hall	Comprehensive renovation of building	115,000	Housing
Bryan Hall	Comprehensive renovation of building	116,000	Housing
Butterfield Hall	Comprehensive renovation of building	103,000	Housing
Kellogg Center	Phased Renovation of building	232,000	Support

Total Gross Square Feet: 2,710,500

Project Name	Description	2011 GSF master plan	Building Type
Long Term (5-20 year planning horizon)			
Child Development Center	Construct building for increased capacity	20,000	Support
College of Business	Construct addition for instructional and research program need	97,000	Academic
College of Human Medicine	Renovation for consolidation and educational program need	180,000	Academic
College of Osteopathic Medicine	Construct building for expansion and educational program need	173,000	Academic
College of Social Science	Additional space for academic and research expansion	11,000	Academic
International Center	Additional office and meeting space	7,000	Academic
Intramural Sports & Recreation	Additions and renovation for fitness space	96,000	Athletics
Kellogg Center	Construct hotel tower	24,000	Support
Library Expansion	Addition at the Main Library	40,000	Academic
Support Service Consolidation	Construct building for Physical Plant consolidation	TBD	Support
Telecom/Transportation	Construct building for telecommunication and transportation services consolidation	36,000	Support
University Storage	Construct building for storage needs	90,000	Support
Veterinary Medicine	Vertical expansion above Oncology for research	35,000	Academic
Water Treatment Facility	Potentially construct reservoir	10,000	Support
Union Building	Phased renovation	209,000	Support

Total Gross Square Feet: 1,028,000

Building Opportunity Framework Plan

This plan illustrates where future buildings can be assimilated into the campus context while reinforcing the Campus Planning Principles and University Zoning Ordinance. As such, the plan does not dictate where and when growth will occur, rather it identifies development opportunities that can be evaluated to address specific programmatic needs when a project is identified and funding secured.

Each numbered site is measured and a potential building gross square foot yield is estimated by incorporating zoning allowances and important contextual features. Where development opportunity land areas are too large and architectural speculation is not definable, a simple planning metric (floor area ratio) is assigned to estimate future programmatic yield.

Based on this assessment the following summarizes the future amount of building opportunities for the campus lands north of Mount Hope Road:

Zoning Designation	Estimated Gross Potential	Estimated Net Potential
North Academic District	304,900 GSF	244,900 GSF
Central Academic District	3,124,735 GSF	2,955,518 GSF
South Academic District	2,986,700 GSF	2,977,486 GSF
West Academic District	4,345,500 GSF	3,147,053 GSF
Athletic/Recreation District	279,000 GSF	279,000 GSF
Service District	1,025,000 GSF	906,144 GSF
Residential District	860,800 GSF	701,058 GSF
Total Opportunity	**12,926,635 GSF**	**11,211,159 GSF**

The estimated net potential represents future building opportunities less any existing building demolition. The campus has historically added an average of approximately 2.0 million gross square feet (MGSF) every decade. At that rate, the net opportunities support approximately 56 years of future growth assuming each site is developed to its optimal capacity.

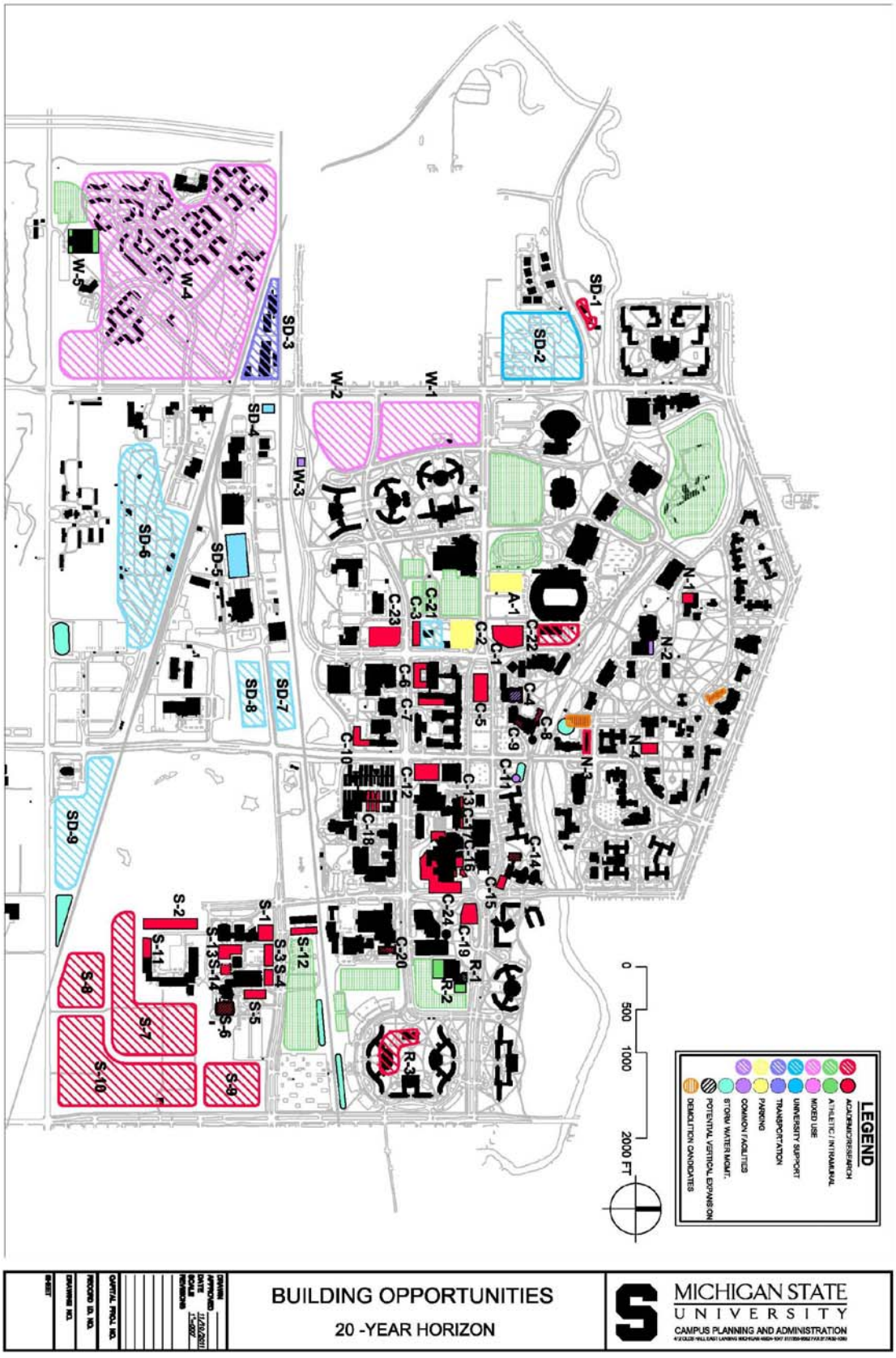
Building Opportunity Framework Plan Beyond 20-year Planning Horizon

Building opportunities anticipated beyond the 20-year planning horizon represent projects requiring significant redevelopment, demolition or program relocation to optimize the use of land resources. While these sites are not likely to be developed in the near term, they need to be part of long-range planning efforts.

Storm Water Management

Campus land is reserved to provide future storm water management facilities that will address municipal storm water regulations under the Clean Water Act. Individual building projects are evaluated by the University Engineer and a technical work group to assess its ability to meet current storm water management regulations on site. If a project cannot meet its requirements on site due to existing development constraints or other unique project attributes, then the university has the option of utilizing a sub watershed facility in another location on campus per Michigan Department of Environmental Quality agreements.

Two important Campus Master Plan recommendations will help reduce the campus' impact on the Red Cedar River. First, the removal/relocation of Parking Ramp #2 (Auditorium Road) will convert a sizeable amount of land back to its function as floodplain. Second, the removal and relocation of approximately 1,100 surface parking spaces in the Central Academic District will remove an existing land use that has significant negative impacts both in terms of storm water quantity and quality.


BUILDING OPPORTUNITIES
20 -YEAR HORIZON
MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION
LEGEND
ACADEMIC/RESEARCH
ATHLETIC / INTRAMURAL
MIXED USE
UNIVERSITY SUPPORT
TRANSPORTATION
PARKING
COMMON FACILITIES
STORM WATER MGMT.
POTENTIAL VERTICAL EXPANSION
DEMOLITION CANDIDATES
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Campus Master Plan - Update 2011
Building Opportunity Framework Plan - Development Capacity Estimates 0- 20 Year Planning Horizon
9/22/2011

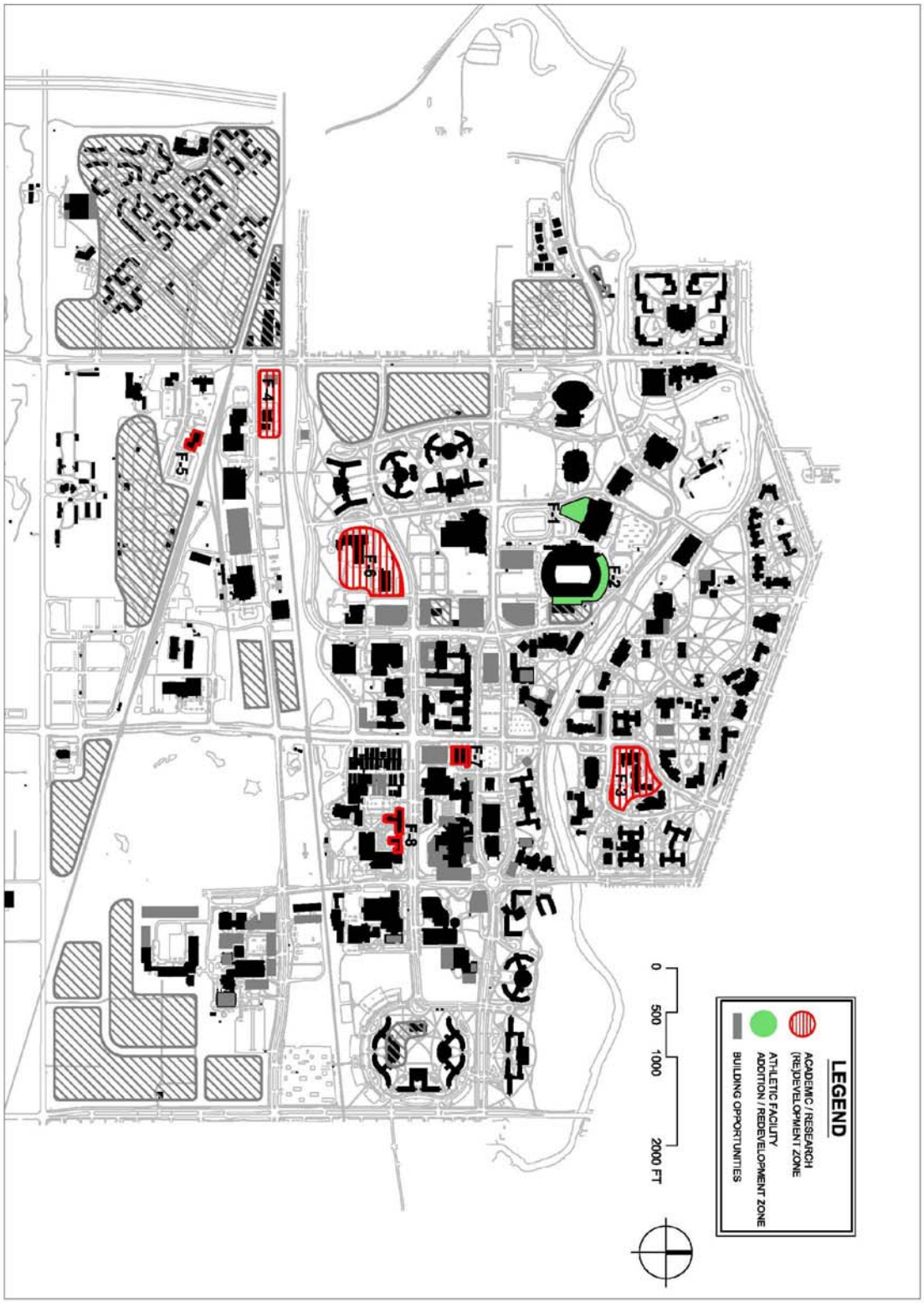
District	#	Project	Estimated Envelope	Proposed Envelope Utilization (%)	Potential Footprint	Footprint Demolition	Proposed Height	Potential GSF	GSF Demolition	GSF Net New	Notes
NORTH ACADEMIC DISTRICT											
N	1	College of Music Addition	14,200	0.9	12,780		4	63,900		63,900	Restrict buildings from Adams Field
N	2	Library Addition	8,400	1	8,400		4	42,000		42,000	
N	3	Bessey Hall Office Wing Redevelopment	20,000	1	20,000	-20,000	4	100,000	-60,000	40,000	Demolish existing and build new
N	4	New Academic Building	22,000	0.9	19,800		4	99,000		99,000	
		District Subtotal			**60,980**			**304,900**		**244,900**	
CENTRAL ACADEMIC DISTRICT											
C	1.1	Shaw Power Plant Demolition	80,000	0.75	60,000	-13,232	6	420,000	-40,660	379,340	Demolish existing Power Plant, Construct new building
C	1.2	Shaw Power Plant Renovation	46,400	0.75	34,800		6	243,600		243,600	248,260 new plus renovation of exisiting Power Plant
C	2	Parking Garage	70,000	0.9	63,000		6	378,000		378,000	1100 spaces approx.
C	3	New Academic Building	23,000	0.9	20,700	-18,634	6	144,900	-47,013	97,887	Demolish existing UPLA building
C	4	International Center Vertical Expansion	10,000	1	10,000		1	10,000		10,000	
C	5	New Academic Building	53,000	0.75	39,750		6	278,250		278,250	
C	6	Engineering Addition	39,000	0.85	33,150		6	232,050		232,050	
C	7	Dow Wing Addition	24,000	1	24,000		4	120,000		120,000	Per IDS 2007 Study
C	8	Erickson Office Vertical Expansion	8,800	1	8,800		2	17,600		17,600	
C	9	Erickson Front Vertical Expansion	7,000	1	7,000		2	14,000		14,000	
C	10	Natural Resources Addition	24,000	0.9	21,600		6	151,200		151,200	
C	11	Special Feature	6,000	1	6,000		1	6,000		6,000	Possible amphitheater/stage/greenhouse
C	12	New Academic Building	52,000	0.75	39,000	-4,992	6	273,000	-5,009	267,991	Demolish storage bldg.
C	13	West Chemistry Additions	3,700	1	3,700		6	25,900		25,900	
C	14	Eppley Center Vertical Expansion	11,000	1	11,000		4	44,000		44,000	
C	15	Business Complex Addition	12,500	0.9	11,250		6	78,750		78,750	Coordinate with Bogue/Shaw intersection redesign
C	16	NSCL Office Phase 3	9,900	1	9,900	-6,500	4	49,500	-6,500	43,000	Per URS Master Plan
C	17	East Chemistry Expansion	3,700	1	3,700		6	25,900		25,900	
C	18	Greenhouse Expansion	28,000	1	28,000		1	28,000		28,000	
C	19	New Academic Building	42,000	0.75	31,500		6	220,500		220,500	
C	20	Veterinary Oncology Vert. Expansion	17,500	0.9	15,750		2	31,500		31,500	
C	21	Utility Facility Addition	9,000	1	9,000		1	9,000		9,000	Also expand storage
C	22	New Redevelopment Zone	98,000	0	0	-23,894	6	0	-70,035	-70,035	Demolish Central Services, assume parking/plaza
C	23	New Academic Building	74,000	0.75	55,500	-6,700	6	388,500	-19,896	368,604	Demolish Oyer Speech and Hearing
C	24	FRIB Expansion	18,000	1	117,968		1	235,935		235,935	
		District Subtotal			**630,268**			**3,182,485**		**2,993,372**	
SOUTH ACADEMIC DISTRICT											
S	1	Life Science Addition	30,000	0.75	22,500		6	157,500		157,500	
S	2	New Academic Building	76,000	0.85	64,600		2	193,800		193,800	Assume two-story or high-bay massing
S	3	Clinical Center Addition	2,500	0.85	2,125		6	14,875		14,875	Per Harley Ellis Plan
S	4	Clinical Center Addition	21,000	0.85	17,850		6	124,950		124,950	Per Harley Ellis Plan
S	5	Clinical Center Addition	25,000	0.85	21,250		6	148,750		148,750	Per Harley Ellis Plan
S	6	Radiology Vertical Expansion	30,000	1	30,000		1	30,000		30,000	Vertical Expansion
S	7	New Academic Zone	836,000	0.75	tbd		1	627,000		627,000	Assume FAR @ 0.75 with surface parking
S	8	New Academic Zone	300,000	0.75	tbd		1	225,000		225,000	Assume FAR @ 0.75 with surface parking
S	9	New Academic Zone	308,000	0.75	tbd		1	231,000		231,000	Assume FAR @ 0.75 with surface parking
S	10	New Academic Zone	1,085,000	0.75	tbd	-3,724	1	813,750	-9,214	804,536	Assume FAR @ 0.75, remove misc. structures
S	11	Automotive Research Addition	21,000	0.9	18,900		1	18,900		18,900	No basement
S	12	Chilled Water Plant Addition	23,000	1	23,000		1	23,000		23,000	Existing Plant at Capacity
S	13	New Academic Building	37,000	1	37,000		6	259,000		259,000	
S	14	Clinical Center C Vertical Expansion	10,000	1	10,000			10,000		10,000	Vertical Expansion
		District Subtotal			**247,225**			**2,877,525**		**2,868,311**	
RESIDENTIAL DISTRICT EAST											
R	1	IM East Vertical Expansion	4,000	1	4,000		1	4,000		4,000	
R	2	IM East Additions	42,000	0.85	35,700		2	71,400		71,400	No basement
R	3	Fee Hall Addition	132,000	0.85	112,200	-59,123	6	785,400	-159,742	625,658	Demo Conrad and part of Fee
		District Subtotal			**151,900**			**860,800**		**701,058**	
WEST ACADEMIC DISTRICT											
W	1	New Mixed use	618,000	0.75	tbd		1	463,500		463,500	Assume FAR @ 0.75 with surface parking
W	2	New Mixed use	447,000	0.75	tbd		1	335,250		335,250	Assume FAR @ 0.75 with surface parking
W	3	Visitor Center Expansion	8,000	0.9	7,200		1	7,200		7,200	No basement
W	4	New Mixed Use	4,703,000	0.75	tbd	N/A	1	3,527,250	-789,622	2,737,628	Assume FAR @ 0.75, Demo apts.
W	5	Tennis Center Addition	28,000	1	28,000		1	28,000		28,000	No basement
		District Subtotal			**35,200**			**4,361,200**		**3,571,578**	
ATHLETIC AND RECREATION DISTRICT											
A	1	Parking Garage	62,000	0.9	55,800		5	279,000		279,000	800 spaces approx.
		District Subtotal			**55,800**			**279,000**		**279,000**	
SERVICE DISTRICT											
SD	1	New Academic Zone	30,000	0.75	22,500	-6,096	2	45,000	-2,808	42,192	Flood plain limitations, no basement
SD	2	University Support	672,000	0	0		0	0		0	State Police Site, perimeter parking
SD	3	Multi-modal Transit Center	291,000	0	0	-93,927	0	0	-101,025	-101,025	Demo all buildings, NIC new train station
SD	4	New Support Building	14,000	0.85	11,900		4	59,500		59,500	
SD	5	Simon Power Plant Addition	115,000	1	115,000		1	115,000		115,000	
SD	6	Future Development Zone	1,250,000	0.35	tbd	-15,154	1	437,500	-15,023	422,477	Assume FAR @ 0.35, demo misc. structures
SD	7	Future Development Zone	160,000	0.35	tbd		1	61,600		61,600	Assume FAR @ 0.35
SD	8	Future Development Zone	190,000	0.35	tbd		1	81,550		81,550	Assume FAR @ 0.35
SD	9	Future Development Zone	521,000	0.35	tbd		1	182,350		182,350	Assume FAR @ 0.35
		District Subtotal			**149,400**			**982,500**		**863,644**	
		TOTAL GSF			**1,330,773**			**12,848,410**		**11,521,863**	

30.55 acres of potential new building footprint

Key:

Academic / Research
Athletics / Recreation
Common Facilities
University Support
Parking Facilities
Transportation
Mixed Use

Potential building GSF includes above ground stories as indicated plus basement unless indicated.

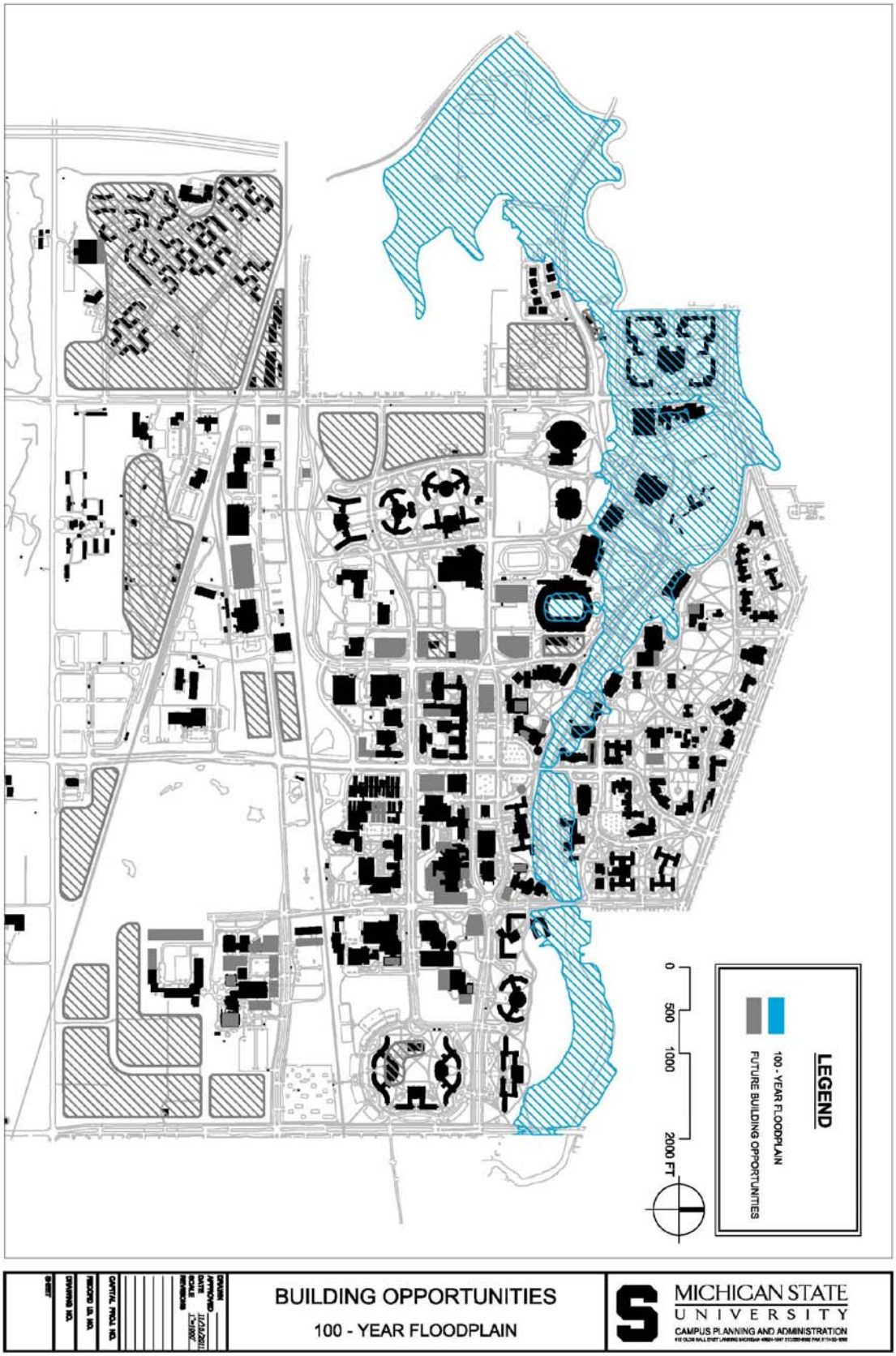


BUILDING OPPORTUNITIES

BEYOND 20 YEARS

MICHIGAN STATE UNIVERSITY

CAMPUS PLANNING AND ADMINISTRATION


LEGEND
100 - YEAR FLOODPLAIN
FUTURE BUILDING OPPORTUNITIES
0
500
1000
2000 FT
BUILDING OPPORTUNITIES
100 - YEAR FLOODPLAIN
MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION

OPEN SPACE AND LANDSCAPE

THE CAMPUS AS AN ARBORETUM

In 1980, President John A. Hannah remarked, "Long ago it was planned that the campus should be an outdoor laboratory, with all the variety of trees, shrubs, and woody plants that could be made to grow in Michigan, labeled and tagged not only for students in botany and silviculture and landscape architecture, but for all students and faculty and people in the community."

President Hannah was reflecting on Professor William Beal's 1872 proposal for a campus arboretum. Professor Beal hoped this would lead to a more formalized campus tree planting program. At the time, trees were grown in an arboretum located between what are today, Mary Mayo and Campbell Halls; from there they were transplanted across campus. Professor Beal conducted the first inventory of campus trees in the 1880's and began the labeling program identifying trees by common name, scientific name, family, and geographic origin, a program which continues today (Telewski 2010). As envisioned by Professor Beal, the campus arboretum serves as a valuable resource for teaching, research, and outreach.

The MSU campus is renowned and beloved by students, faculty, staff, alumni, and visitors. As such, detailed recommendations are required to protect and enhance its open space and landscape aesthetic; maintaining an appropriate balance with the ever evolving built environment.

The Campus Master Plan provides a unifying vision for the campus open space and landscape aesthetic. It offers a flexible framework that guides planning design and maintenance, while allowing latitude in the design of individual projects. The plan directs stewardship and preservation of the historic campus park and guides future enhancement of the built environment, including the campus as an arboretum for educational, research, and public outreach.

PROTECTED GREEN SPACE

Based on the detailed classification of the open space system, the following areas are deemed sensitive to development and are subject to protection from any new buildings or pavement under the regulations of the University Zoning Ordinance.

Component 1 areas identify and protect landscape areas that have an ecological or historic aspect. *Component 2* areas identify and protect green space that provides a unique programmatic or research land use.

CAMPUS-WIDE CONSIDERATIONS

Education, Research, Conservation, and Public Outreach

GOAL:

Develop the campus landscape to support the university's educational and research mission, and to promote learning outside the classroom.

OBJECTIVES:

1. Protect and enhance a diverse collection of woody plant material which is tracked in a plant records database (*BG-BASE*) and made available to the university community and public via a web interface.
2. Protect, enhance, and expand existing demonstration, teaching, and research areas.
3. Protect the collection from degradation and construction impacts.
4. Identify existing or developing green spaces and landscapes with a high intrinsic educational or research value.
5. Encourage the planting of both wild origin as well as cultivated origin plant material in the collection.
6. Provide open spaces of various sizes for student, employee, and visitor enjoyment (public events, concerts, passive recreation, plazas, personal reflection, etc.).
7. Maintain a campus-wide plant labeling system providing interpretive plant labels on selected specimens in the collection.
8. Coordinate with long term utility planning.
9. Respond to degrading effects of cyclical plant diseases and pests.

Campus Image

GOAL:

Maintain and enhance the campus' high-quality image and park-like setting.

OBJECTIVES:

1. Maintain a high-quality image that reflects institutional values and provides a pleasant experience for students, faculty, staff, and visitors.
2. Preserve, enhance, and protect the qualities of distinctive and high quality open spaces from inappropriate new campus development or other negative impacts.
3. Plan new building and open space improvements jointly and with the same degree of importance to ensure each new investment elevates the quality of the campus aesthetic.
4. Convey a distinct image, unified character, and high-quality impression at all major vehicular and pedestrian campus entrances.
5. Prioritize and consolidate campus beautification investments to improve the campus' landscape character south of the Red Cedar River.

6. Provide a variety of landscape typologies and open space appropriate to the major campus land use districts (e.g., academic, residential, athletic, and service).
7. Visually screen parking and service areas.

Historic Stewardship

GOAL:

Preserve and enhance the campus' historic landscape features. Maintain a landscape design that reflects institutional values, honors historic design, and demonstrates a respect for campus heritage.

OBJECTIVES:

1. Protect areas that contribute to the overall historic context to ensure they are not conspicuously altered.
2. Protect trees of historic value and propagate them for future planting (MSU Heritage Tree Program administered by Campus Planning and Administration in coordination with the Beaumont Nursery)
3. Preserve important historic landscape systems, patterns, and features.
4. Utilize the landscape for historic, archaeological, and anthropological studies.
5. Strengthen the Heritage Tree Program to replace indigenous material.
6. Protect State Champion Trees, MSU Commemorative Trees, and MSU Heritage Trees.
7. Refresh and reinvest in the older campus gardens.
8. Develop a tree evaluation, removal, and mitigation policy.

Campus Safety

GOAL:

Provide a safe and secure environment for vehicular (motorized and non-motorized) and pedestrian corridors.

OBJECTIVES:

1. Coordinate streetscape plantings with street lights to afford safe roadway and walkway illumination. Coordinate tree spacing/location to provide adequate light at maturity; trees spacing shall "gap" at street and walkway light fixture locations.
2. Provide adequate sight lines for pedestrians and motor vehicles at roadway intersections, driveways, boulevard cuts, and pedestrian crosswalks per appropriate engineering standards and in balance with aesthetic detail.
3. Place appropriate tree species along walkways and adjacent to bus stops that will not create hazards (from leaf, fruit, or litter drop) to pedestrians or persons with physical disabilities.
4. Avoid plantings that provide unsafe hiding places. Thin out overgrowth in areas along walkways that can visually isolate pedestrians. Assess building entrances, eliminating areas that can mask potentially dangerous activities and hiding places.

Environmental Sustainability

GOAL:

Create a landscape that incorporates and embraces environmentally-sustainable practices including low impact development and storm water best management practices.

OBJECTIVES:

1. Restrict high-maintenance ornamental plantings especially annuals and perennials to priority landscape areas.
2. Minimize landscape areas that require irrigation; where required utilize an efficient system appropriate to plant material needs.
3. Enhance plant species diversity to avoid large-scale damage and loss from diseases and pests and to reduce pesticide use.
4. Emphasize the use of native/sustainable plants that are drought and disease resistant; group plants with similar water needs.
5. Protect campus areas from development that can provide storm water management coordinated with the university's Storm Water Master Plan.
6. Utilize plants that help reduce energy use and that mitigate "heat island" affects.
7. Remove, eliminate, and discontinue planting species that have proven to be invasive in the campus landscape. Maintain only minimal representation in the collection for teaching and research purposes, but monitor for spread (ie: Norway Maple, *Acer platanoides*).
8. Mitigate detrimental or uncomfortable wind patterns with appropriate plant material. Utilize evergreens selectively to establish windbreaks where necessitated by architectural massing.
9. Coordinate plantings with snow removal and storage plans.
10. Employ Best Management Practices (BMP) for storm water management; manage storm water on site wherever possible per current regulatory requirements.
11. Collect and reuse rain water; discharge roof water drainage onto lawns where appropriate.

Resource Management

GOAL:

Balance landscape priorities with maintenance requirements to optimize the use of resources (people, equipment, and funding).

OBJECTIVES:

1. Limit the frequency and size of elite landscapes to those specific locations with very strong historic and photographic qualities.
2. Limit the use of annuals and bulbs (unless used for naturalizing) to Elite Landscape Areas or movable planters.

3. Limit the use of perennials to priority landscapes, gardens, plazas, and major building entrances as directed by Engineering and Architectural Services Landscape Architects.
4. Utilize a landscape mowing strip along building walls when appropriate to minimize maintenance.
5. Promote the use of plant species that do not require irrigation beyond establishment.

DISTRICT RECOMMENDATIONS

Historic and Historic Contributing

INTRODUCTION

The park-like setting that students, alumni, and visitors endear is directly influenced by the historic campus landscape(s). The West Circle Drive area from Grand River Avenue to the Red Cedar River and from the Beal Entrance to the Lab Row building group is the site of the original built campus founded in 1855. The prairie-style landscape and informal grouping of buildings provides a picturesque campus park unique among American college campuses. The trees and undulating lawns within the West Circle Drive area were recognized by O.C. Simonds as "sacred space" (circa 1905).

DESIGN RECOMMENDATIONS

- Preserve the "Oak Opening" and prairie-style planting patterns of sun and shade.
- Incorporate interpretive displays that compare historic and current campus maps.
- Preserve and reinforce the historic context by utilizing native plant populations, maintaining historic vegetative patterns, and protecting Heritage Trees; strengthen the MSU Heritage Tree Program to replace indigenous material.
- Emphasize the use of straight species, including some of known wild source (vs. commercially promoted varieties) in designated areas and provide tree labels per academic and public needs.
- Consider plants popular during the historic period associated with the adjacent architectural context, rather than modern cultivars.
- Initiate supplemental plantings that will replace existing canopy with same or similar plant species, except where impossible (e.g., *Fraxinus*).
- Protect the Beal Botanical Garden, including its place of origin; Sleepy Hollow.
- Preserve important views and axial relationships wherein the landscaping honors and accents historic monuments and buildings.
- Minimize additional impervious surfaces.
- Prohibit lawn parking to protect plant health.
- Provide APPA (The Association of Higher Education Facilities Officers) maintenance level 3 or higher practices.

Park-Like Academic

INTRODUCTION
The academic districts of campus, comprised of a diverse collection of trees and shrubs, lend themselves to supporting teaching and research activities for students and visitors alike.

DESIGN RECOMMENDATIONS

- Provide a diverse mixture of plant species that support academic teaching requirements.
- Use plant material to create a pleasant scale and aesthetic environment along major pedestrian corridors; especially those adjacent to major roadways.
- Consider habitat and food needs to encourage wildlife diversity.
- Allow but restrict areas for lawn parking.
- Provide APPA maintenance level 3 or higher practices.

North Academic District

The Prairie School patterning of "sun openings" is prevalent in the North Academic District. This concept consists of creating alternating areas of deep shade and bright, sunlit lawns that are reminiscent of the indigenous savannah that once covered much of the northern Midwest. The trees and undulating lawns within the Circle Campus area were recognized by O.C. Simonds as "sacred space" (circa 1905) and remains so today.

- Maintain the historic informal context and Prairie School landscape patterns reminiscent of the oak opening.
- Highlight the major pedestrian entrances along Grand River Avenue with woody plant material exhibiting seasonal interest.
- Recapture floodplain along the river through building relocation and demolition over time, and the removal of invasive species (e.g. Honeysuckle *Lonicera* and Buckthorn *Rhamnus cathartica*) in this corridor, replacing with native plant populations.
- Minimize the increase of, or where possible reduce, impervious surface area through careful future development including low impact development (LID) design techniques.
- Maintain the grove of tall canopy trees at the Beal, Abbot, and Farm Lane entrances to provide a calming transition into campus.
- Use an informal street tree planting pattern around West Circle Drive and along the Beal Entrance.
- Use a formal street tree pattern along East Circle Drive, Auditorium Road and Physics Road.

Central Academic District

The extensive roadway network and large building massing negatively impact the campus aesthetic, and subsequently, human comfort. Much of what a pedestrian perceives is strongly influenced by the adjacent roadways and architectural design. Therefore a strong streetscape and front yard landscape is essential to mitigate these elements and to properly transition the

landscape scale from the roadway to the building entrances. Special focus should be on providing a pleasant experience and sense of scale along pedestrian walkways.

- Preserve and enhance existing garden/natural areas including the river corridor, Peoples Park(defined by the Red Cedar River, Wells Hall, the International Center and Erickson Hall), Horticultural Demonstration Gardens, Michigan 4-H Children's Garden, Lewis Landscape Arboretum, and the gardens/courtyards adjacent to the Wharton Center, Chemistry, Natural Resources, and Engineering.
- Use a formal street tree pattern and stagger canopy trees on both sides of adjacent pedestrian walkways. The monumental roadway scale influences the landscape and human comfort, demanding large and stable woody plants. Minimize the use of fussy and maintenance intensive perennials within and along the roadway corridor.
- Establish groves of tall canopy trees where appropriate (areas unencumbered by infrastructure).
- Utilize native evergreens to screen railroad tracks from Trowbridge Road extension and south campus residence halls as part of the *Walk Across America* plantings located south of Trowbridge Road.
- Introduce smaller-scaled landscapes that encourage personal interaction.
- Continue planning for the relocation of the large surface parking lots along Shaw Lane and the creation of a new central campus green space per the Campus Master Plan.

South Academic District

The district is defined by large architectural structures that struggle to provide a sense of place or a pleasant relationship with the pedestrian realm. This requires that the landscape mitigate for this dominance; creating a comfortable pedestrian environment. The landscape needs to be strengthened to better unify the visual aesthetic and to provide places for social interaction, academic collaboration, and personal relaxation.

- Establish open spaces that help organize the district's existing and future buildings.
- Provide a high quality streetscape and front lawn along Service Road.
- Establish a strong campus image along Hagadorn Road.
- Develop a priority campus vehicular entrance at Service Road and Mt. Hope with appropriate signage and landscaping.

Park-Like Residential

INTRODUCTION

Approximately 16,000 students call the university's seven residential neighborhoods home. The landscape design for the neighborhoods must address a wide variety of issues including: scale transition, screening of service functions, providing room for informal recreation, and more intimate areas for relaxation and mental restoration.

DESIGN RECOMMENDATIONS

- Maintain a park-like aesthetic that is dominated by expansive lawn areas for recreation blended with a strong pattern of canopy trees/evergreens, strong drifts of shrub beds, and greater introduction of more interesting woody ornamentals.
- Provide a hierarchy of open space typologies that accommodate a variety of informal recreation and social opportunities. Provide areas for sitting, gathering, and personal interaction.
- Encourage year-round ornamental aesthetics (e.g., textures, colors, scents, accents, etc.)
- Where applicable, relate the landscape design to the residential college initiative.
- Enhance the student experience by promoting learning & development through interaction.
- Provide appropriately-sized plants to soften architectural scale.
- Utilize plantings carefully to prevent hiding places near building entrances and low windows.
- Eliminate attractive (children) toxics (e.g., *Taxus* & *Convallaria*).
- Manage storm water on site or within the contiguous residential district; use collected rainwater for irrigation.
- Emphasize landscape aesthetics at major building entrances; utilize perennials at building front doors especially facilities with high summer use.
- Restrict the use of annuals for special events in approved planters approved by EAS (Engineering and Architectural Services) landscape architects.
- Mitigate detrimental or uncomfortable wind patterns around the residence halls with appropriate plant material (typically due to architectural massing)
- Provide APPA maintenance level 3 or higher practices.

<u>Front Yard</u>

The front yard is more about “curb appeal” and providing a transition in scale and aesthetic detail from the larger campus and active circulation corridors to the residential neighborhood and individual buildings.

- Provide a park-like setting comprised of extensive lawn panels, canopy trees, evergreens, and shrub beds conducive with the neighborhood’s historic context (i.e., context differs between the West Circle Neighborhood and those in the South Neighborhood).
- Minimize the use of maintenance-intensive planting beds.
- Provide a transition of landscape scale from the roadway down to the building entrances.
- Buffer residential units from adjacent roadways through strategic plant choices, placement, and density.
- Utilize storm water management techniques that maintain a clean visual aesthetic (e.g., passive infiltration, storm drains, small rain gardens, etc.).

Back Yard

The back yard is analogous to our back yard at home. It is where the students go to chill out or burn off extra energy through informal exercise, like tossing a ball or throwing a Frisbee. It is where one can decompress and relax and where the landscape is brought down to a more intimate scale and details are attuned to the senses.

- Create a generally open and park-like setting with a few developed plazas/patios and individual seating areas.
- Incorporate more plant material variety with a nice amount of seasonal interest. Consider flower aesthetics, branching aesthetics, understory and ornamentals trees, and shrub beds where appropriate.
- Preserve open areas for recreation; typically informal and non-organized. Locate volleyball and basketball courts in these areas.
- Incorporate areas for the social gathering of small groups.
- Provide semi-private areas for personal reflection.
- Facilitate connections to academic programs where appropriate (e.g., residential colleges). Provide living/learning opportunities.
- Incorporate small rain gardens, public art, landscape furnishings, and recreational amenities.

Main Building Entrance and Vehicular Drop Off

The main building entrances are important in establishing a proper image for the university and its residential life program. First impressions are made here; requiring an appropriate level of landscape quality throughout the seasons.

- Provide a pleasant landscape setting utilizing perennials and woody plants exhibiting a variety of seasonal interest.
- Coordinate with Residential and Hospitality Services (RHS) on balancing the extent of these areas with available maintenance budgets.
- Consider moveable planters with annual color and seasonal variety.
- Landscape upgrades may also be warranted at building entrances, other than the main front door, that regularly handle large volumes of pedestrian traffic. Front doors are often not the most utilized entrances.

Neighborhood Food and Engagement Centers

Outdoor plaza/patio space adjacent to the neighborhood food and engagement centers supports the underlying concept of bringing people together for social and academic interaction. Properly accessorize these portals to the residential neighborhoods to encourage active use, assist in wayfinding, and to support the RHS mission.

- Provide a comfortable setting that encourages interaction.
- Create a pedestrian-scaled landscape that extends the interior functions into the outdoors and that provides a transition from the park-like landscape to the building entrance. Consider these as major building entrances in their design detailing.

- Amplify landscape details including texture, contrast, and seasonal interest.

Park-Like Service

INTRODUCTION

The Campus Master Plan strategizes consolidating support services south of the Canadian Northern railroad tracks. The landscape should reinforce this area as a vital part of the overall campus, while acknowledging its purpose and functions.

DESIGN RECOMMENDATIONS

- Establish a simple, functional, and easily maintainable landscape focused on enhancing the visual aesthetic.
- Use plants tolerant of extreme conditions.
- Utilize lawn panels, canopy trees, and evergreens to soften the utilitarian architectural context, screen service areas, and provide pedestrian scale to walkways.
- Utilize an informal street tree planting approach on Service Road sympathetic to the existence of driveways, walkways, and utility distribution lines.
- Buffer and screen loading docks and large parking lots from street views.
- Establish plantings along the Farm Lane roadway consistent with this major campus entrance with heavy visitor use.
- Restrict the use of perennials, annuals, and bulbs to office/building entrances that receive extensive visitor traffic (e.g., MSU Bakers, Surplus Store and Recycling).
- Provide APPA maintenance level 4 or higher practices.

Athletic and Recreation

INTRODUCTION

Intercollegiate athletics and intramural recreation activities require a landscape capable of handling large volumes of people, heavy foot traffic, and various activities that can stress the landscape (e.g., event parking on intramural fields). While the venues themselves require a very utilitarian design, this must be balanced with the fact that they are also gateways for hundreds of thousands of visitors each year, and as such, must present a high quality aesthetic that properly represents the university.

DESIGN RECOMMENDATIONS

- Meeting the functional needs for recreation and athletic events takes precedence over academic and research needs in these areas.
- Provide a landscape that is simple, functional, and clean.
- Enhance the visitor experience with seasonal landscaping at venue entrances and developed gathering areas.
- Choose plants for drought tolerance.
- Minimize wildlife attractants.
- Allow, but protect, the landscape and irrigation system from special event parking.

- Maintain the existing park-like landscape, utilizing plants that will mature to a large size; adequate to balance against the large building masses.
- Provide a pleasing and safe landscape that supports large crowd fluctuations.
- Consider seasonal interest geared toward the athletic schedule of the sports played within each facility.
- Provide APPA maintenance level 1 practices.

River Corridor

INTRODUCTION

The Red Cedar River is an iconic campus element that is a core attribute of our beloved campus park. It is an active natural system; constantly changing as the water's erosive powers work against the banks. A large collection of Ash trees inhabit the river corridor and with the ongoing destruction by the Emerald Ash Borer, most of these will not survive. The university needs to reinvest in the river corridor from a historic, cultural, aesthetic, and environmental perspective. A report commissioned by the Physical Plant was prepared addressing this reinvestment entitled *Natural Areas – 2006 Riverbank Stabilization Study* dated February 2007.

DESIGN RECOMMENDATIONS

- Protect and enhance the river corridor recognizing it as one of the most important open spaces and landscape features on campus.
- Refer to the report commissioned by the Physical Plant entitled *Natural Areas – 2006 Riverbank Stabilization Study* dated February 2007.
- Survey species, eradicate invasive plants, and utilize native populations for future plantings.
- Protect and enhance the river corridor as a natural system and minimize attempts to manicure its look.
- Balance river bank protection vs. water access and plant accordingly; maintain and protect the rapids area and associated access points.
- Utilize native plant populations.
- Minimize secluded spaces and create openings as needed.
- Minimize future pumping from river water source for irrigation.
- Establish a riparian buffer (no mowing area) to promote storm water infiltration, minimize maintenance, and enhance wildlife habitat.
- Provide plantings for wildlife.
- Coordinate landscape with the Storm Water Master Plan and NPDES Permit.
- Consider reclaiming the river's floodplain when redevelopment opportunities arise.
- Provide APPA maintenance level 4 or higher practices.

Signature Landscapes

INTRODUCTION

Signature landscapes are focal points in the campus landscape. They vary in size and purpose and are typically associated with a heightened design aesthetic, utilize high-quality materials, are often associated with public art, fountains, or historic features, include irrigation, and demand elevated maintenance standards and practices. They are important for providing places to encourage community interaction and can be considered as eddies within the larger campus park wherein people can slow down and enjoy a more intimate sense of scale. The signature landscapes are comprised of both Elite and Priority plazas, gardens, and landscapes.

DESIGN RECOMMENDATIONS

- Provide a high level of design quality, aesthetic appeal, and maintenance activity that represents the importance of these areas to the university's public image and community use.
- Limit the use of annuals to Elite landscape locations. Limit the use of perennials to Elite and Priority landscape locations.
- Maximize aesthetic qualities and seasonal interest due to frequent and year-round visitation; maintaining a high quality image takes precedence over academic and research needs in these areas.
- Develop stylized landscapes that follow a theme where appropriate (e.g., building entrance gardens in the lab row collection of buildings).
- Diversify the plant collection with special and/or rare species that are supported by maintenance.
- Create a unique and memorable sensory and aesthetic experience through design, materials, and maintenance; utilize the highest degree of landscape architectural and horticultural design expertise to create a unique sense of place.
- Plan for seasonal displays as an integral design component.
- Incorporate storm water management features as special design elements where possible.
- Balance woody plant replacements and/or restorations with respect to the original design intent vs. current needs/conditions.
- Provide APPA maintenance level 1 practices.

Gardens and Arboreta

INTRODUCTION

These areas are delineated and overseen by a curator or established administrative group. They are actively designed, planted, and managed; not naturalized. A primary goal for the use of these areas is education and research and intensive maintenance is required to sustain the integrity of the plantings and collections.

DESIGN RECOMMENDATIONS

- Incorporate a wide variety of plants to enhance educational and research value.

- Actively utilize irrigation to maintain plant health and vigor.
- Employ structural and non-structural BMP's for storm water that are visually sympathetic to the surrounding context.
- Provide APPA maintenance level 1 practices.

Natural Areas

INTRODUCTION

The natural areas are designated by Board of Trustee action and are overseen by the Campus Natural Areas Committee. They are classified into three categories of protection and academic use is based on their overall quality and their potential for sustained use. They serve as protected examples of Michigan's native landscape and wildlife.

DESIGN RECOMMENDATIONS

- Allow plant species to evolve naturally.
- Limit trail construction and utilize natural materials where appropriate (e.g., mulch).
- Maintain and respect the three different categories of preservation that ensure maximum protection for high-quality natural areas, while other sites are available for experimentation and demonstration.
- Recognize value as a source of preservation and of genetic and biological diversity.

Conservation and Demonstration

INTRODUCTION

Conservation and demonstration areas are built landscapes for the purpose of storm water management, education and research. They are actively designed, planted, and managed; requiring a moderate amount of maintenance to maintain the integrity of the plantings and operation of the storm water management features.

DESIGN RECOMMENDATIONS

- Actively monitor and manage areas.
- Incorporate native plant populations to enhance educational and research value.
- Label some plants to promote education and interpretation.
- Employ structural and non-structure best management practices for storm water management.

Campus Entrances

INTRODUCTION

Each and every entrance to the campus (vehicular and pedestrian) provides an important opportunity to strengthen the university's image and reinforce its reputation for excellence. High quality landscape design and maintenance practices are a priority in these areas.

Consistent signage and a homogeneous landscape treatment is desirable for aiding visitor wayfinding and the efficient movement of goods and services.

DESIGN RECOMMENDATIONS

- Extensive academic utilization is not anticipated in these areas.
- Strive for a consistent and high-quality landscape character (durable materials, pleasant to the senses, well-constructed, etc.) while allowing unique and memorable variety; refinement will vary with campus locations and environmental conditions.
- Promote institutional reputation in a consistent and organized manner utilizing visual references identifiable from a distance (e.g., brick and limestone campus gateway signs).
- Preserve the scale and design intent of historic entrances through priority maintenance and delicate restoration.
- Utilize the entrance design and plants to slow vehicles down but not distract drivers.
- Choose salt-tolerant plants and other hardy material that do not require (winter-long) fencing once established.
- Provide APPA maintenance level 2 practices.

<u>Vehicular Entrances</u>

- Design the landscape plantings with simple and bold patterns that are appropriate to a "35 mph landscape"; utilize large drifts of singular plant types.
- Establish a wooded grove or "gateway canopy" of shade trees and evergreens that will provide an interconnected canopy at maturity (example Beal Entrance).
- Use similar plants at each entrance, hardy to the specific location, and adjusted for context and scale. A homogeneous plant palette is desirable at each entrance within natural limits of environmental conditions. Plant variety should only be driven by unique conditions of a particular location (exposure, soil, irrigation, etc.).
- Utilize woody plants and possibly perennials that provide seasonal interest (leaf color, flower, branching habit, fall color, etc.) and minimize maintenance costs. Annuals and formal bulb displays are not appropriate at vehicular entrances.
- Coordinate the location and orientation of the brick and limestone campus gateway signs in the design.
- Maintain all appropriate clear vision zones for vehicular (motorized and non-motorized) and pedestrian safety.

<u>Pedestrian Entrances</u>

- Provide a pleasant transition into the campus with clear and open lines of sight for safety.
- Utilize understory trees and other woody plant material with seasonal interest to create a welcoming sense of scale and seasonal aesthetic variety. Annuals and formal bulb displays are not appropriate.
- Consider using black metal decorative fencing to reinforce a common design language and image especially along Michigan and Grand River avenues.

- Incorporate a visitor information kiosk at major pedestrian portals and at large concentrations of visitor parking.

Streetscapes

INTRODUCTION

The campus roadway system provides approximately 18 miles of opportunity to establish a quality image for the university. The streetscape, the landscape setting adjacent to the road, must address numerous design issues including safety, image, environmental sustainability, and wayfinding; all within what is often a very harsh growing condition.

DESIGN RECOMMENDATIONS

- Utilize canopy trees per MSU street tree list.
- Utilize landscaping to support the overall wayfinding system (e.g., consistent plantings at major signs to reinforce message).
- Strive for a diverse collection of recommended urban-tolerant trees.
- Incorporate plant species that can be used for study and research on extreme growing conditions or pests; use the campus as a living/learning lab.
- Establish plantings on both sides of walkways along major roadways to reinforce pedestrian scale.
- Maintain mature trees unless their condition poses a safety hazard.
- Minimize visual obstructions at crosswalks; do not locate trees near intersections or mid-block pedestrian crossings where they will obscure appropriate lines of sight.
- Provide appropriate lighting and coordinate with tree plantings to provide adequate light at maturity; provide appropriate "gap" at street lights.
- Minimize use of trees with excessive litter, especially where adjacent to bus stops and barrier-free path ramps.
- Minimize single species avenues.
- Minimize use of wildlife attractants.
- Choose salt-tolerant plants minimizing need for protective fencing during the winter, once plants are established.
- Obtain review and approval of plant locations with the University Traffic Engineer (DPPS).
- Provide APPA maintenance level 3 or higher practices.

<u>Regularly-Patterned Parkway</u>

This refers to the area of landscape between the road curb and the adjacent sidewalk where a regular cadence or pattern of canopy trees is appropriate.

- Blocks of single species, on both sides of the street is a desirable pattern, with patterns changing to promote diversity in any one corridor (intent is to avoid a mono-culture planting). This infers a more formal pattern adjacent to the road and allows a more informal pattern in the front-yard setback. (Often, straight lines are the norm due to space and underground utility constraints.)

- Maintain similarly sized and shaped mulch beds where appropriate.
- Maintain minimum branching height of 8’ over walkways and roadways.
- Landscape furnishings (other than bus shelters and bike racks) should not be located between the road and sidewalk.

Informal Parkway

This refers to the area of landscape between the street curb and the adjacent sidewalk where an informal pattern of canopy trees is appropriate.

- Utilize tree species appropriate to the plant association existing in the area.
- Do not utilize a regular geometry for tree spacing; embrace and reinforce the informality of the context.

Medians

This refers to the area of landscape between opposing lanes of traffic.

- Utilize predominantly large canopy trees to provide visual safety for motorists, bicyclists, and pedestrians. Selectively use lower-branching or multi-stemmed material where appropriate and where not a visual safety concern.
- Species selection here can be more diverse than compared to the street trees allowing more informal and varied patterns.
- Slight earth mounding is desirable to promote drainage and salt shedding (except where bio-swales are appropriate).
- Choose salt-tolerant plants and other hardy material that do not require (winter-long) fencing once established.
- Perennials and or woody plant material (2’ or less in height) can be considered at mid-block crossings to accent these locations.

Front Yards

This refers to the landscape area between the sidewalk and adjacent building, or if no building is present, the area immediately adjacent to the sidewalk.

- Maintain a predominance of canopy or large ornamental trees. Conifer trees can occur in areas where safety and/or lighting are not a concern and where visual screening is desirable.
- Provide an informal transition from the streetscape to the buildings; incorporate color and structural interest near building entrances.
- Strive for a consistent landscape treatment around all green-panel signs. Remove landscape treatment when the sign is removed. Consider mature plant size and growth habit so that plants do not obscure sign information.

Parking Areas

INTRODUCTION

Parking facilities are required to meet the institution's teaching, research, and outreach mission. These facilities shall be properly landscaped to mitigate their size and presence within the overall campus park-like setting.

DESIGN RECOMMENDATIONS

- Meeting the functional requirements for parking takes precedence over academic and research needs in these areas.
- Screen cars from adjacent roadways or non-compatible land uses with landscaping.
- Break up large expanses of parking into smaller zones.
- Group trees where possible in larger landscape areas.
- Preserve mature trees.
- Properly design parking facilities within historic zones to minimize negative visual impacts.
- Restrict use of irrigation (only in locations adjacent to priority image areas or signature landscapes.
- Use drought-, heat-, and salt-tolerant plants.
- Consider alternative pavement designs (e.g., permeable pavements or crushed glass admixtures)
- Install oil separators where rain water discharges into storm sewers and not into a bio-filtration system.
- Reduce heat gain through landscaping.
- Coordinate landscape design with projected snow storage zones.
- Provide APPA maintenance level 4 or higher practices

USE OF ANNUALS AND PERENNIALS

The use of annuals should be restricted to elite campus locations, while perennials can be used in both elite and priority gardens and plazas per the Landscape Priorities Framework Plan. This will ensure a balance between their high aesthetic appeal and their inherent high maintenance requirements and costs.

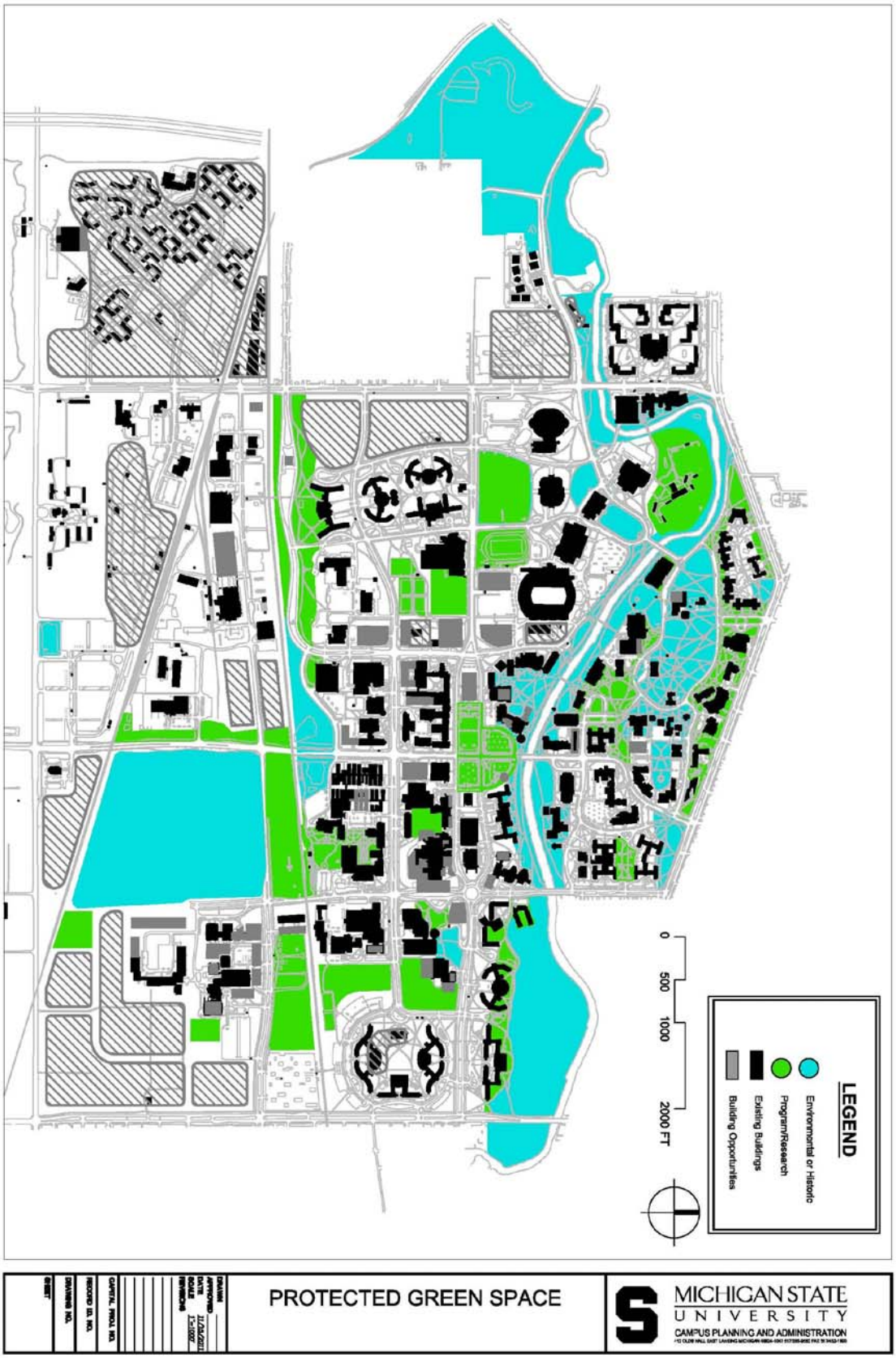
- They should be considered an integral part of the design concept for the targeted area and applied in sufficient quantity as warranted by the scale of the space.
- Consider woody plants with showy flowers and/or other seasonal interests in lieu of more maintenance-intensive annuals/perennials. Incorporate in a meaningful way to achieve consistent goals (e.g., use of color at entrances to increase visibility and assist visitor wayfinding).
- Groundcovers, and annuals should not be used (or used in limited quantities) under mature trees due to negative impacts on the trees' root system.
- Landscape Services may prepare designs, collaborating with EAS landscape architects prior to ordering plants. Three-year rotation designs are encouraged to provide variety where possible and to streamline the design and installation process.

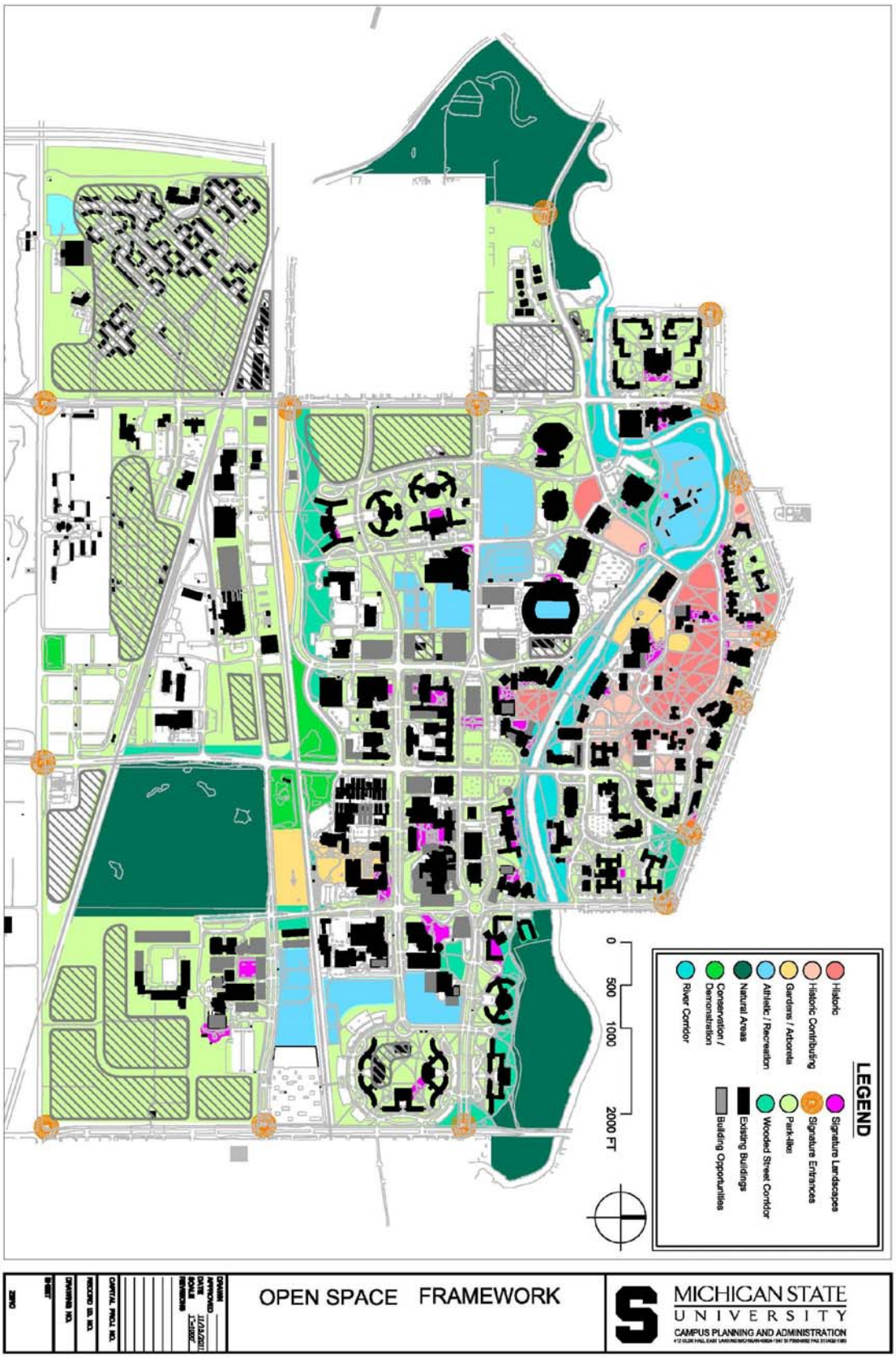
- The use of large planters (planter selection in collaboration with EAS) in strategic locations (e.g., main building entrances, in lieu of bollards, etc.), managed by Landscape Services is acceptable (possible rental agreement). Their utilization is valid at residence hall entrances where a home-like feeling is desired especially for summer campus/events.
- Campus vehicular entrances should use drifts of woody plants that will provide three seasons of interest (e.g., roses) or at least a variety of seasonal interests. Utilize at an appropriate scale so as not to overpower the visual environment. Each entrance can have a unique palette due to conditions like sun, shade, soil, winter exposure, etc.
- Main building entrances can have a more complicated and maintenance intensive planting concept comprised of woody ornamentals.
- Design in accordance with existing irrigation systems; minimize the expansion of irrigated landscape to high priority image areas.
- Incorporate sustainability concepts in the design and use of annuals and perennials. Intensive maintenance requires more mechanical equipment that consumes fossil fuels and emits green-house gasses. Landscape priorities must also consider economic issues related to installation and maintenance.

SUSTAINABLE LANDSCAPE DESIGN GUIDELINES

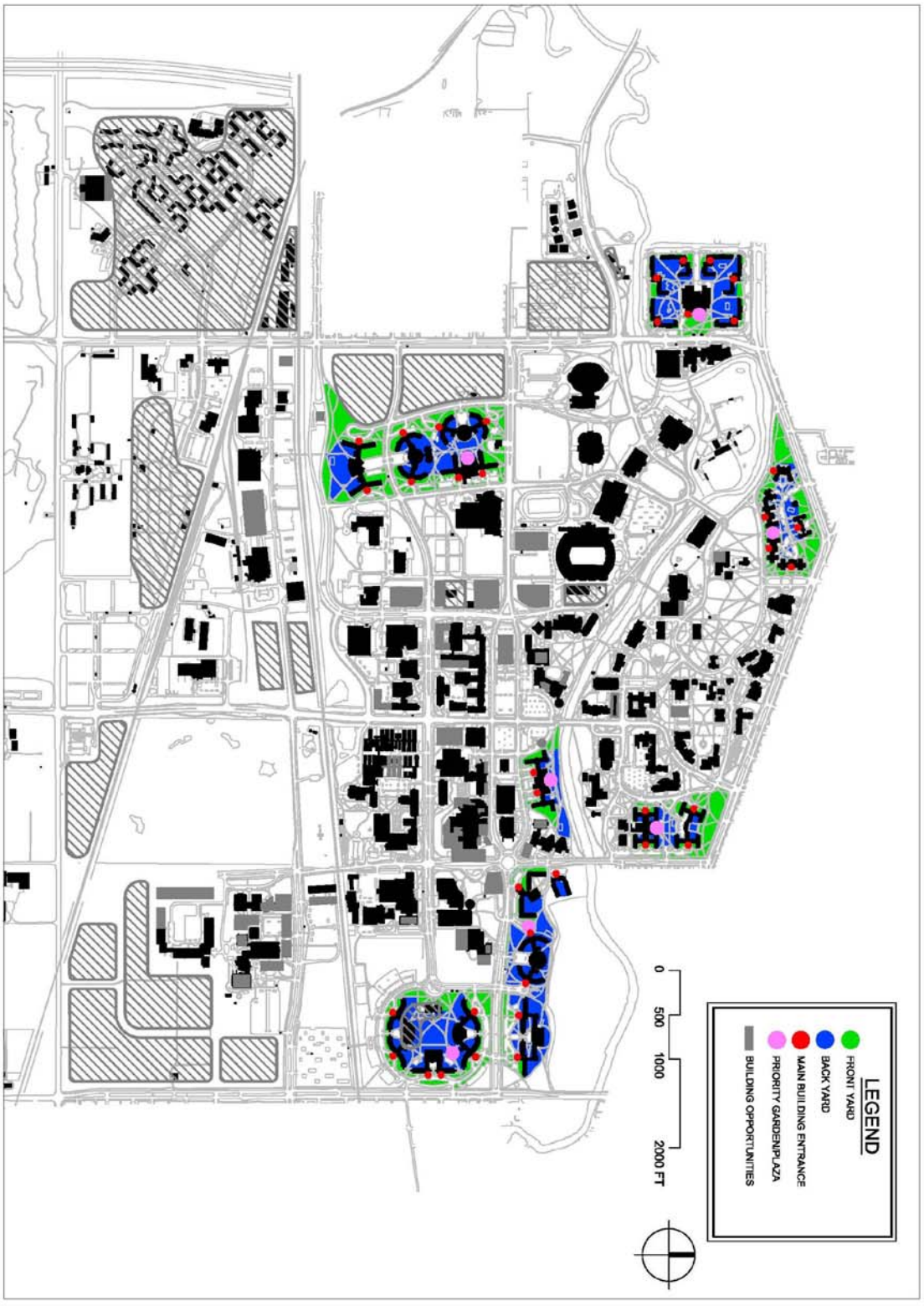
1. Protect natural systems.
2. Reduce pollution (chemical, erosion/sedimentation, water quality/temperature).
3. Restore/Improve ecological function (infiltration, degraded soils, habitat diversity).
4. Practice site appropriate plant selection – right plant right place –utilize material that will thrive and perform to expectations without extensive maintenance unless warranted by academic/research mission.
5. Expand and promote the use of rain gardens on campus that utilize native/sustainable plant material, while enhancing the visual quality of a given area (i.e. Erickson Hall patio).
6. Eliminate species known to be invasive in mid-Michigan and do not incorporate invasive species in future planting designs (except where maintained and monitored under controlled conditions in limited numbers for teaching and research).
7. Minimize storm water conveyance in pipes by incorporating bio-swales, bio-retention areas, and rain gardens where aesthetically appropriate.
8. Introduce environmentally sustainable pavements into roadway, parking lot, and walkway designs (e.g., impervious, glass-add mixtures).
9. Introduce informative signage, where appropriate, to educate people regarding sustainable strategies.
10. Maintain proper salt spreading techniques on campus roads through proper calibration of salt spreading equipment, proper management of salt pile consumption, and identifying and managing areas of high salt sensitivity.
11. Incorporate storm water collection systems and grey-water systems into new architecture where appropriate.
12. Introduce linear sand filters along roadways and parking lots that empty into the river.
13. Utilize oil separators for parking lot storm water outfalls that discharge into the river.
14. Incorporate below-grade nutrient separating structures where less expensive surface options are not feasible.

15. Provide a diverse matrix of plant material (taxonomy, structure, age) that minimizes large-scale impacts from disease and pest infestations.
16. Establish a delineated riparian buffer along the river.
17. Practice prudent use of irrigation (not NO irrigation).
18. Incorporate green roofs into the campus landscape and academic/research activity.
19. Provide a landscape that addresses the social aspects of sustainability (e.g., places for a diverse range of people to interact).
20. Continue to expand the mature tree canopy for storm water management benefits.
21. Balance new development with open space and vegetation offsets.
22. Promote our investment in the campus landscape for positive public relations.
23. Establish wildlife habitats in appropriate areas; encourage wildlife where appropriate (natural corridors/woodlots) and discourage wildlife where inappropriate (safety concerns).
24. Incorporate education and outreach components into the landscape (e.g., river access for classes, interpretive signs).
25. Make storm water management visible and an educational opportunity.
26. Consider lifecycle maintenance costs for structural best management practices (e.g., rain garden and infiltration basin maintenance).
27. Establish maintenance categories that are context appropriate.
28. Incorporate new construction standards for landscape implementation incorporating aspects of LEED and the ASLA Sustainable Sites Initiative.
29. Balance use of wood mulch vs. groundcover plantings (cost, plant vigor, and aesthetics).


LEGEND
Environmental or Historic
Program/Research
Existing Buildings
Building Opportunities
0
500
1000
2000 FT
PROTECTED GREEN SPACE
MICHIGAN STATE
UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION


LEGEND
Historic
Historic Contributing
Signature Landscapes
Signature Entrances
Gardens / Arboreta
Athletic / Recreation
Park-like
Wooded Street Corridor
Natural Areas
Existing Buildings
Conservation / Demonstration
Building Opportunities
River Corridor
0
500
1000
2000 FT
OPEN SPACE FRAMEWORK
MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION

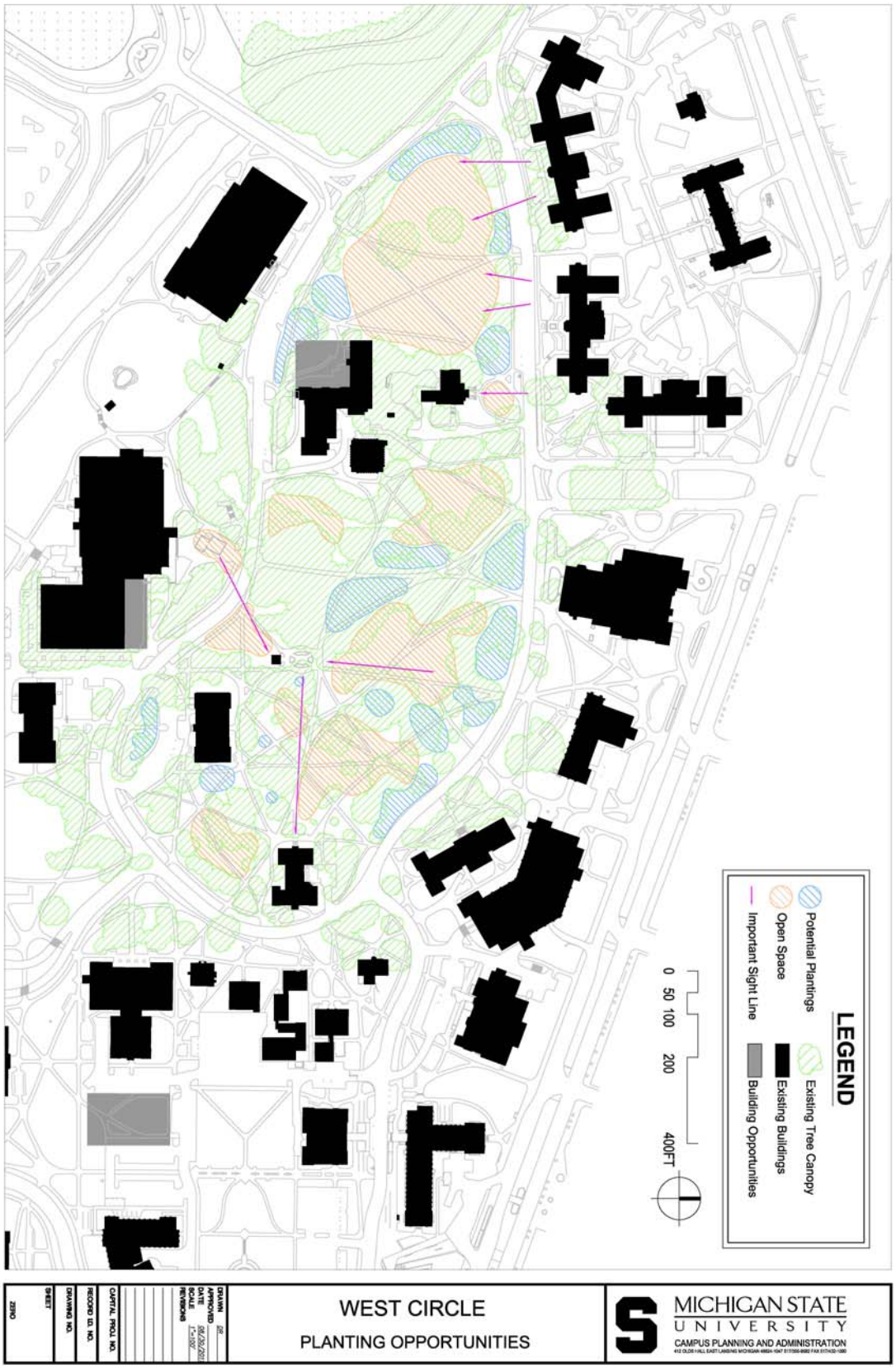

LEGEND:
★ = Elite
● = Priority Garden/ Plaza
F = Future Priority Garden/ Plaza
E = Priority Vehicular Entrance
P = Priority Pedestrian Entrance
= Priority Landscape/ Green Space
= Natural Area
= Future Priority
= Historic
=Future Building Opportunities
= Future Development Parcel
0 500 1000 2000 FT
LANDSCAPE PRIORITIES
MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION



RESIDENTIAL NEIGHBORHOODS

LANDSCAPE FRAMEWORK

MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION


LEGEND
Potential Plantings
Existing Tree Canopy
Open Space
Existing Buildings
Important Sight Line
Building Opportunities
0 50 100 200 400FT
WEST CIRCLE
PLANTING OPPORTUNITIES
MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION

MOTORIZED AND NON-MOTORIZED CIRCULATION

NEAR-TERM RECOMMENDATIONS

In the near-term (five-year planning horizon), the following projects are anticipated.

Bogue Street Modifications

- Close roadway segment between Shaw Lane and Wilson Road in coordination with the FRIB project
- Reconstruct the Bogue Street and Shaw Lane traffic circle in response to ADA 2010 requirements; reconfigure into a more traditional signalized intersection with enhanced pedestrian safety
- Reconfigure the Wharton Center vehicular drop off; maintain accommodations for busses and barrier-free service
- Incorporate pedestrian and bicycle routes through the new open space to maintain this important north-south non-motorized corridor
- Closing this segment of Bogue Street will put pressure on the existing intersection of East Shaw Lane and Wilson Road; reconfigure and signalize as part of the Wilson Road extension recommendation

Wilson Road Extension

- Extend Wilson road to Hagadorn Road within 200-feet of the CN Railroad tracks and install a smart signal coordinated with the CN Railroad and Service Road signalized intersections
- Convert the north-south segment of Wilson Road between Shaw Lane and Conrad Hall into a two-lane roadway with signalized intersections as required
- Locate a majority of the reconstructed parking adjacent to Fee Hall, minimizing pedestrian/vehicular conflicts
- Reconfigure the vehicular drop off east of Hubbard Hall

West Circle Drive

- Reconstruct West Circle Drive over a four-year time frame in coordination with a major steam utility upgrade project
- Maintain two vehicular traffic lanes and add a bike lane on the outer edge
- Maintain a counter-clockwise traffic flow
- Narrow the vehicular travel lanes to 10-feet wide; calming traffic and minimizing impacts on the campus arboretum
- Provide a new sidewalk between Linton Hall and Abbot Road to address pedestrian and bicycle circulation needs

Chestnut Road Reconstruction

- Reconstruct Chestnut Road from West Shaw Lane to Red Cedar Road in coordination with a major utility enhancement project
- Remove on-street parking and improve pedestrian safety at crosswalks
- Add bicycle lanes

Farm Lane and Grand River Intersection

- Re-engineer roadway geometry and pedestrian crosswalks to enhance safety
- Signalize the East Circle Drive/Farm Lane intersection; synchronized with the Farm Lane/Grand River intersection
- Sever connection with Physics Road, eliminating a problematic turning movement
- Reconfigure Mason Hall driveway
- Eliminate access to Farm Lane from the parking lot north of the Psychology Building. Provide access of Physics Road

Parking Garage #2 (Auditorium Road)

- The existing parking ramp will require demolition in the near term due to age and escalating maintenance costs
- Replace parking consistent with the Campus Planning Principles calling for more perimeter supply
- Provide appropriate shuttle and bus service to meet user needs
- Further incentivize utilization of commuter lot (parking lot #89) including appropriate year-round bus service for faculty and staff needs

Multi-modal Transit Center

- Develop a multi-modal transit center including a new train and bus station accessing the CN Railroad and Amtrak Blue Water line
- Demolish existing university buildings as required to accommodate facility operations
- Enhance pedestrian and bicycle infrastructure including new sidewalks, bike storage, and modern audible technology for pedestrian circulation at the Harrison Road intersection with Trowbridge and Service Roads
- Accommodate taxi, shuttle, car rental, and car share services
- Provide adequate parking for patrons
- Incorporate environmentally sustainable architectural and site development elements including rain gardens, green roofs, and pervious pavement
- Position new development to take advantage of future potential commuter rail along the CSX Railroad

Red Cedar River Non-motorized Trail

- Construct a new non-motorized route along the south side of the Red Cedar River from the Kellogg Hotel and Conference Center to Hagadorn Road
- Implement construction over a six-year phasing strategy
- Provide dedicated and shared pathways, where appropriate, to enhance safety through improved separation of bicycle and pedestrian circulation

Miscellaneous Non-motorized Enhancements

- Continue to design all roadways as complete streets; update the university's construction guidelines and standards in accordance with State of Michigan Public Acts 134 and 135 of 2010 wherein all roadways are to be planned and designed to meet the needs of all legal users
- Continue to meet the needs of persons with disabilities and new ADA 2010 requirements

- Provide infrastructure to support a suite of transportation options that discourage single-occupancy vehicle trips to, from, and around campus (e.g., CATA Clean Commute and Zipcar car sharing programs)
- Reconstruct Farm Lane between Wilson Road and the Red Cedar River to accommodate bike lanes and sidewalk enhancements; creating a complete bicycle corridor from Grand River Avenue to Mount Hope Road
- Revise curb alignment at Abbott Road entrance and Grand River Avenue to control vehicular turning movements and improve bicycle safety
- Study and implement site improvements at the southwest corner of Chestnut and Shaw to curtail existing J-walking and to enhance pedestrian safety
- Add share the road pavement marking on Stadium Drive, Recycling Road, and Green Way
- Replace eroded footpath at the WWII memorial and Michigan Avenue with pavement and stairs
- Install new crosswalk on Red Cedar Road between Parking Ramp #5 and the Public Safety Building
- Provide new walkway at the West-Range Greenhouse's parking lot to the Farm Lane and Wilson Road intersection
- Relocate crosswalk from Akers Hall loading dock area north to Shaw Lane
- Construct an accessible route from Bessey Hall under the Farm Lane Bridge to Auditorium Field

LONG-TERM RECOMMENDATIONS

The following recommendations are identified to guide physical development over the longer term.

Beal Entrance

- Establish a two-way road from Michigan Avenue to The Spartan sculpture.
- Coordinate with MDOT for intersection improvements at Beal Street and Michigan Avenue; including a left-turn from west-bound Michigan and a traffic signal if warranted
- Provide a left-turn lane for access onto West Circle Drive

Bouge Street within the South Academic District

- Loop Bogue Street through the South Academic District as a two-lane roadway, with center turn lanes as required
- Reengineer the existing Bogue Street and Service Drive intersection removing the awkward boulevard transitions and consider signalizing
- Provide roadway linkages to Mount Hope and Hagadorn Roads if warranted to meet future traffic volumes

Red Cedar Road at Spartan Stadium

- Reconfigure roadway alignment to increase separation of intersection with Kalamazoo Street
- Reconfigure parking lots to accommodate daily parking and events
- Enhance stadium service access

Shaw Lane

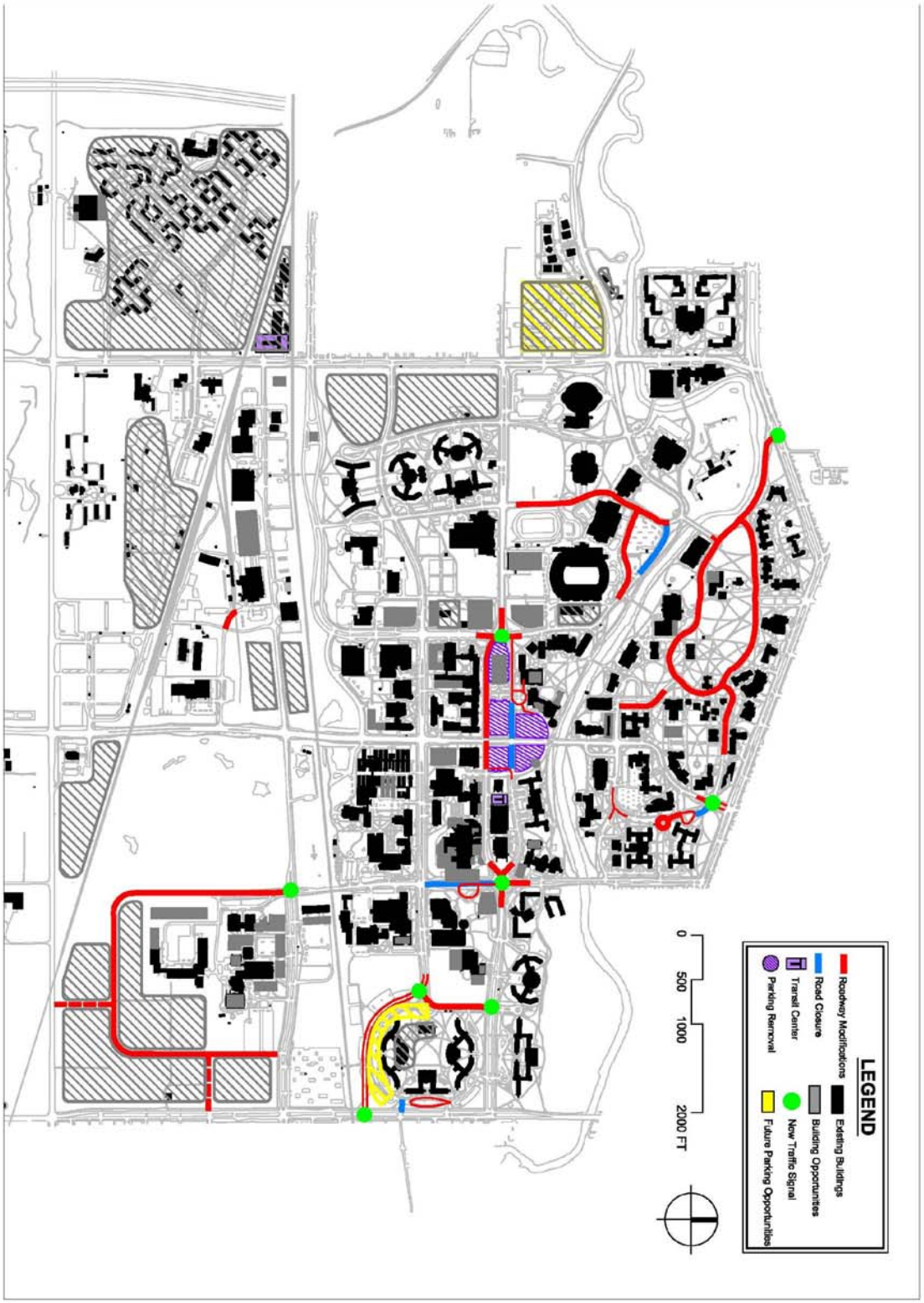
- Close segments of North Shaw Lane to private automobile traffic
- Convert South Shaw Lane to two-way traffic between Red Cedar Road and Farm Lane
- Relocate all surface parking into a new parking garage at the southwest intersection of Shaw Lane and Red Cedar Road
- Reconfigure Shaw Lane east of Farm Lane to accommodate transition into the existing one-way road system
- Reconfigure Shaw Lane and Red Cedar Road Intersection
- Establish limited access service road to Erickson Hall and the International Center for service, emergency, barrier-free, and short-term parking

Parking

- Relocate the approximately 1,100 surface parking spaces in the Central Academic District into a new parking garage at the intersection of Red Cedar Road and Shaw Lane
- Reserve the opportunity for a future parking garage or deck south of Spartan Stadium
- Add peripheral parking at the State Police facility, adjacent to the existing commuter parking lot (relocating the Agricultural Exposition facility), and potentially along Mount Hope Road
- Provide shuttle and/or additional bus service from perimeter parking to meet user needs

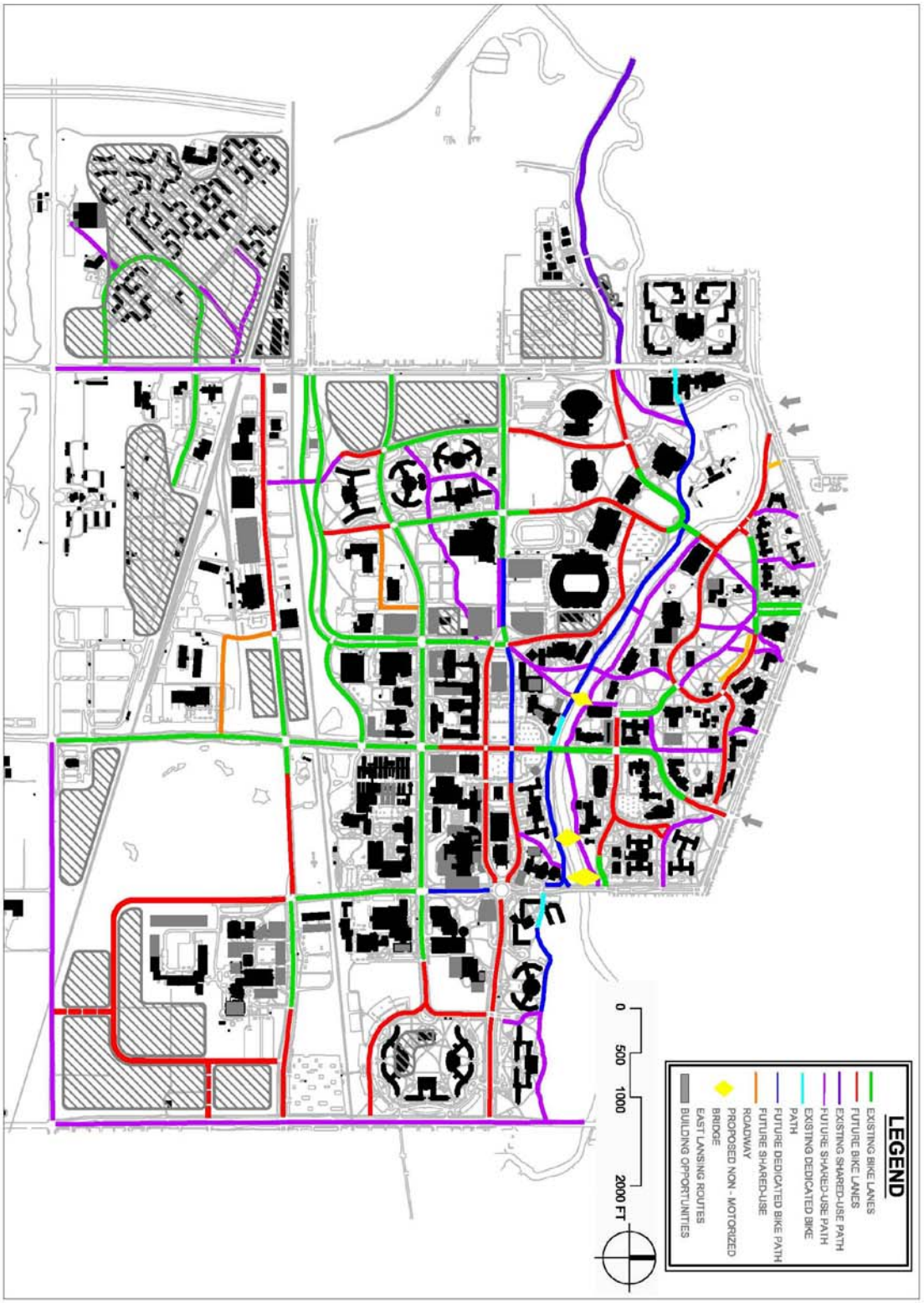
Bicycle Infrastructure

- Incorporate bicycle lanes into all roadways unless deemed inappropriate by the university traffic engineer
- Provide bicycle lockers at perimeter parking lots
- Consider building sheltered and secured bicycle parking at major demand locations (e.g., residential neighborhoods, parking garages, academic districts)
- Create a dedicated bicycle and pedestrian path along the south side of the Red Cedar River from Harrison to Hagadorn Roads
- Install share the road pavement markings on Stadium Road, Green Way and Recycling Road



MOTORIZED
CIRCULATION FRAMEWORK

MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION



NON - MOTORIZED
CIRCULATION FRAMEWORK

MICHIGAN STATE UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION

MICHIGAN STATE UNIVERSITY ZONING ORDINANCE

CERTIFICATION

I HEREBY CERTIFY that the following Act to Codify Regulations Affecting Campus Planning, Designating Land Area Uses, Establishing a Campus Master Plan, and Providing for the Administration Thereof, for the Benefit and Protection of the Property of the Board of Trustees of Michigan State University, was passed by the Board of Trustees at a meeting duly called and held at East Lansing, Michigan, on the ninth day of December, 2011, at which a quorum was present and voted.

_____

Bill Beekman, Secretary

Dated: April 19, 1968

Revision Date: December 9, 2011

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AN ACT TO CODIFY REGULATIONS AFFECTING CAMPUS PLANNING, DESIGNATING LAND AREA USES, ESTABLISHING A MASTER PLAN, AND PROVIDING FOR THE ADMINISTRATION THEREOF, FOR THE BENEFIT AND PROTECTION OF THE PROPERTY OF THE BOARD OF TRUSTEES OF MICHIGAN STATE UNIVERSITY, PURSUANT TO AUTHORITY CONFERRED BY THE CONSTITUTION AND STATUTES OF THE STATE OF MICHIGAN.

1.00 - STATEMENT OF PURPOSE

1.1 The Board of Trustees of Michigan State University believes that regulations are essential to preserve the campus environment of spaciousness and landscape beauty, promote order and unity, and minimize congestion on the property governed by the Board, and to provide guidelines affecting the improvement thereof, the Board hereby adopts the following provisions:

2.00 - EFFECTIVENESS OF ORDINANCE

2.1 This ordinance became effective at 12:01 a.m. September 1, 1968. This Ordinance is coordinated with and becomes an integral part of the Campus Master Plan and all updates.

3.00 – AUTHORITY OF BOARD OF TRUSTEES

3.1 This ordinance is enacted by the Board of Trustees of Michigan State University pursuant to and in accordance with the authority and responsibility of said Board contained in the Constitution of the State of Michigan and the Public Acts relating thereto.

4.00 – DEFINITIONS

4.1 The term “institution” pertains specifically to Michigan State University at East Lansing, Michigan.

4.2 The term “academic use” encompasses any building or portion thereof that is used for the teaching of classes, research facilities and administrative and operational facilities, or any similar function and use for the educational and operational purposes of the institution.

4.3 The term “building” refers to principle-use and accessory structures, and all attached architectural elements including stairs, areaways, ramps, and retaining walls that are integral to the design and function of the building.

4.4 The term “accessory building” includes a subordinate building or portion of a main building, located within the same block or district, which is secondary in nature to the principal use.

4.5 The term “accessory use” refers to a use that is subordinate to the principal use within the same block or district, comprising purposes secondary in nature to those of the principal use.

4.6 The term “ground area of a block” includes all land from the centerline of adjacent streets and roads or abutting use area established by description on the Zoning District Map. Such lines may be established by curb lines, section lines, institution property lines, other property lines, or those lines as shown and described on the Zoning District Map which is a part of this ordinance.

4.7 The term “curb line” is defined by the back of curb on either side of a road that is used for the general movement of motor vehicles, and encompasses those existing or extended, but does not include the curb line of parking bays, bus turnouts or similar variations. If no curb exists, the location of a proposed curb will be considered as the curb line. All setbacks are measured from the back of curb.

4.8 The term “nearest roadway” means that road which lies nearest any side of a building that is used for the general movement of motor vehicles, and does not include service drives or related variations thereof.

4.9 The term “non-conforming use” includes any building or land occupied and used at the time of the adoption of this Zoning Ordinance which use does not conform with the use regulations established therefore.

4.10 The term “Coverage” refers to the amount of ground area covered by buildings within a specified block of land defined by the adjacent roadway centerlines.

4.11 The term “protected landscape area” includes any land area essentially kept in an open lawn, wooded or landscaped condition, that is free of parking and buildings, and reserved for general use and enjoyment by the public and residents of the campus. Protected landscape areas may include recreation fields, walkways, bicycle paths, bicycle parking, bridges, sculpture pavilions, amphitheaters and other related structures that are compatible with the purpose of these areas.

4.12 The term “service use” refers to any building or land that is primarily involved with utility services and functions, and such accessory uses essential to the operation of the institution.

4.13 The terms “story” and “story height” refer to that portion of a building that is included between the surface of any floor and the surface of the next floor above it.

4.14 The term “setback” refers to the dimension between a building and adjacent roadway’s curb line.

4.15 The terms “footprint” and “footprint change” refers to the existing layout or modification of the existing layout regarding buildings, roads, parking, sidewalks, plazas, and other major constructed site features.

5.00 - GENERAL REGULATIONS

5.1 Districts Established: In order to regulate and restrict the location of buildings and other structures erected or altered for specified uses, the campus is hereby divided into the following “Zoning Districts”:

AC-N	North Academic District
AC-C	Central Academic District
AC-S	South Academic District
R	Residential District
AR	Athletic and Recreation District
SE	Service District
N	Natural Areas District
AG	Agricultural and Natural Resources District
MU-N	North Mixed Use District
MU-S	South Mixed Use District

5.2 Area Boundaries: The boundaries of Zoning Districts are established on the Zoning District Map attached hereunto and made a part hereof, and all notations, references, and other descriptions contained thereon are made a part of this ordinance.

5.3 Compliance: Except as herein provided no land shall be used and no building shall be erected, converted, enlarged, reconstructed or substantially altered which does not comply with the district regulations established by this ordinance for the district in which the building or land is located.

5.4 Essential Utility Services: Structures required in conjunction with the distribution and maintenance of essential utility services may be permitted in any location when approved by the Director of Campus Planning and Administration who shall submit a determination of necessity therefore. The Director may, if he deems it necessary, refer any specific request for an essential utility service structure through appropriate channels to the President and the Board of Trustees of Michigan State University for their consideration and determination.

All public utilities included in the essential utilities services shall be subject to the same provisions outlined in the preceding paragraph.

5.5 Except as provided herein, no buildings, roads or parking shall be located in the Protected Landscape Areas designated within the Zoning Districts as shown on the Protected Landscape Areas Map. The design of all elements in the protected landscape areas shall be approved by the Director of Campus Planning and Administration. Such elements include walkways, bridges, sculpture, pavilions, amphitheaters, plantings, bicycle storage, essential utility services, storm water management features, and modification to pre-existing disallowed elements such as parking lots, roads and service drives. Expansion of existing buildings that abut Protected Landscape Areas requires approval from the Director of Campus Planning and Administration and shall be allowed only when other alternatives are proven to be unreasonable and when the expansion will only cause a minor change in the character of the Protected Landscape Area.

6.00 - DISTRICT REGULATIONS

6.1 "AC" Academic Districts: The following provisions shall apply to the Academic Districts AC-N, AC-C, and AC-S:

6.1.1 Permitted Uses: Permitted Uses for the AC Districts shall include the following Principal and Accessory Uses. All uses not listed are not permitted in the AC Districts unless otherwise provided for in this ordinance:

6.1.1.1 Principal Uses and Buildings:

- Teaching facilities, including classrooms, lecture halls, instructional laboratories and similar facilities used for general educational purposes.
- Other facilities, including research laboratories, general student facilities other than student housing, faculty offices and all administrative and operational functions.

6.1.1.2 Accessory Uses and Buildings:

- Surface parking and parking structures.
- Uses and structures necessary to the maintenance, operation and function of the principal uses and buildings.
- Recreation fields and buildings.

6.1.2 Building Height Requirements:

6.1.2.1 All buildings shall be limited to six stories of occupied space plus required rooftop equipment in Districts AC-C and AC-S, and to four stories of occupied space plus required rooftop equipment in AC-N.

6.1.2.2 Teaching facilities shall be located in the lowest floors possible, and not above the fourth floor of any building.

6.1.2.3 Parking garages shall be limited to six parking levels above and including ground level.

6.1.2.4 Accessory buildings shall be no higher than necessary to accommodate the proposed use and under no circumstances shall exceed the height of principal uses in the district.

6.1.3 Set Back Requirements: All buildings shall be set back a minimum of 40 feet from the nearest curb line of the nearest roadway.

6.1.4 Building Coverage:

6.1.4.1 Buildings shall not cover more than 30% of the ground area of any given block within the AC District unless otherwise specified herein.

6.1.4.2 Buildings shall not cover more than 35% of the ground area of any given block within the specific area defined by Red Cedar Road to the west, the CN Railroad to the south, the Residential District to the east, and South Shaw Lane to the north.

6.1.4.3 The block of land defined by South Shaw Lane to the north, Farm Lane to the west, Wilson Road to the south, and the Residential District to the east has been granted a 42% coverage limitation by Board of Trustees action on April 9, 2008.

6.2 "R" Residential District: The following provisions shall apply to the Residential District:

6.2.1 Permitted Uses: Permitted Uses for the "R" District shall include the following Principal and Accessory Uses. All uses not listed are not permitted in the R District unless otherwise provided for in this ordinance:

6.2.1.1 Principal Uses and Buildings:

- Residence halls and their associated living services, such as food services and health and wellness facilities.
- Multiple unit dwellings.
- Primary schools, daycare centers, playgrounds and other outdoor recreation facilities.

6.2.1.2 Accessory Uses:

- Limited academic uses.
- Limited retail, recreation and commercial uses to serve residents.
- Other uses within the building necessary to the maintenance, operation and function of the principal uses and buildings.
- Surface parking.

6.2.2 Building Height Requirements:

6.2.2.1 Residence Halls: Height shall be limited to six stories plus required rooftop equipment.

6.2.2.2 Accessory Uses and Buildings: Height shall be limited to three stories.

6.2.3 Set Back Requirements: All buildings shall have a set back of a minimum distance of 50 feet from the nearest curb line of the nearest roadway.

6.2.4 Building Coverage: Buildings shall not cover more than 20% of the ground area within any given block in the "R" Districts.

6.3 "AR" Athletic and Recreation District: The following provision shall apply to the Athletic and Recreation District:

6.3.1 Permitted Uses: Permitted Uses for the "AR" District shall include the following Principal and Accessory Uses. All uses not listed are not permitted in the AR District unless otherwise provided for in this ordinance:

6.3.1.1 Principal Uses and Buildings:

- Facilities related to recreational, intramural and sport event type of uses.

6.3.1.2 Accessory Uses and Buildings:

- Other uses and buildings necessary to the maintenance, operation and function of the principal uses and buildings.
- Surface parking and parking garages.

6.3.2 Building Height Requirements:

6.3.2.1 All buildings shall be limited to four stories in height or to the height necessary to accommodate the particular sport function and design.

6.3.2.2 Parking garages shall be limited to six levels above and including ground level.

6.3.3 Set Back Requirements:

6.3.3.1 All organized recreational, intramural or sport fields and courts shall have a set back of a minimum distance of 50 feet from nearest curb line of the nearest roadway

6.3.3.2 All buildings shall have a set back of a minimum distance of 65 feet from the nearest curb line of the nearest roadway.

6.3.4 Building Coverage: Buildings shall not cover more than 25% of the ground area within any given block in the "AR" District.

6.4 "SE" Service District: The following provisions shall apply to the Service District:

6.4.1 Permitted Uses: Permitted Uses for the "SE" District shall include the following Principal and Accessory Uses. All uses not listed are not permitted in the SE District unless otherwise provided for in this ordinance:

6.4.1.1 Principal Uses and Buildings:

- Power plants including solar or wind energy generation and storage
- Maintenance centers.
- Institutional stores.
- Storage facilities.
- Office buildings.

6.4.1.2 Accessory Uses and Buildings:

- Other uses and buildings necessary or similar to the principal uses and buildings pertinent to the maintenance and operation of the institution.
- Surface parking.

6.4.2 Building Height Requirements: All buildings shall be limited to six stories in height. The only exceptions allowed will be power plant chimneys and similar accessory uses.

6.4.3 Set Back Requirements: All buildings shall have a set back of a minimum distance of 50 feet from the nearest curb line of the nearest roadway or edge of pavement where curbs do not exist.

6.4.4 Building Coverage: Buildings shall not cover more than 30% of the ground area within any given block of the "SE" District.

6.5 "N" Natural Areas District: The following provisions shall apply to the Natural Areas District:

6.5.1 Permitted Uses: Permitted Uses for the "N" District shall include the following Principal and Accessory Uses. All uses not listed are not permitted in the N District unless otherwise provided for in this ordinance:

6.5.1.1 Principal Uses:

- Permitted uses include observation, nature study, teaching, research and demonstration in Category I, II and III Natural Areas as defined by the Campus Natural Areas Committee and shown on the most recent version of the MSU Campus Natural Areas Map and Zoning District Map.

6.5.2 Special Provisions: The Natural Areas District shall remain undeveloped. No buildings, roads, improved walks, utilities or other structures and alterations are permitted in the Natural Areas District.

6.6 "AG" Agricultural and Natural Resources District: The following provisions shall apply to the Agriculture and Natural Resources District:

6.6.1 Permitted Uses: Permitted Uses for the "AG" District shall include the following Principal and Accessory Uses. All uses not listed are not permitted in the AG District unless otherwise provided for in this ordinance:

6.6.1.1 Principal Uses and Buildings:

- Program related single-family dwellings.
- Agricultural and natural resources research, teaching and outreach facilities for plants and animals.
- Farm areas for experimentation, teaching, outreach, and cultivation or production of plants and animals for institutional use.
- Associated agricultural facilities not operated by the Institution.

6.6.1.2 Accessory Uses and Buildings:

- Other uses and buildings that are necessary to the operation and maintenance of the principal uses and buildings such as silos, wells and pumping stations for the entire institution, maintenance centers, etc. shall be allowed.
- Surface parking.
- Solar or wind energy generation and storage.

6.6.2 Building Height Requirements: All buildings shall be limited to a height of two stories, with the exception of silos and similar structures that are necessarily of greater height.

6.6.3 Set Back Requirements: All buildings shall be set back a minimum distance of 100 feet from centerline of nearest public roadway.

6.7 "MU" Mixed Use Districts: The following provisions shall apply to the two independent mixed-use districts MU-N and MU-S:

6.7.1 Permitted Uses: Permitted uses for the MU Districts shall include the following Principal and Accessory Uses. All uses not listed are not permitted in the MU Districts unless otherwise provided for in this ordinance:

6.7.1.1 Principal Uses and Buildings MU-N:

- Teaching facilities, including classrooms, lecture halls, instructional laboratories, general student facilities, and similar facilities used for general educational purposes.
- Research laboratories.
- Public/private business incubators.
- Student and faculty housing.
- Faculty and administrative office.
- Health and wellness facilities.
- Academic support.
- Auxiliary retail services.

6.7.1.2 Principal Uses and Buildings MU-S

- Research laboratories.
- Public/private business incubators.
- Student, faculty, and alumni retirement housing.
- Administrative offices.
- Health and wellness facilities.
- Auxiliary retail services.

6.7.1.1 Accessory Uses and Buildings:

- Surface parking and parking structures.
- Uses and structures that are necessary to the maintenance, operation and function of the principal uses and buildings.
- Athletic/recreation fields and buildings.

6.7.2 Building Height Requirements:

6.7.2.1 All buildings in the MU-N District shall be limited to six stories of occupied space plus required rooftop equipment. Buildings within the MU-S District that

incorporate parking, office space, and housing space should be limited to eight stories of occupied space plus required rooftop equipment.

6.7.2.2 Teaching facilities shall be located in the lowest floors possible, and not above the fourth floor of any building.

6.7.2.3 Parking garages shall be limited to six parking levels above and including ground level.

6.7.2.4 Accessory buildings shall be no higher than necessary to accommodate the proposed use and under no circumstances shall exceed the height of principal uses in the district.

6.7.3 Set Back Requirements: All buildings shall be set back a minimum of 40 feet from the nearest curb line of the nearest roadway.

6.7.4 Building Coverage: Buildings shall not cover more than 30% of the ground area of any given block within the MU-N District and 35% of the ground area of any given block within the MU-S District.

6.7 Non-Conforming Uses and Buildings:

6.7.1 Non-conforming uses: The use of any land area existing at the time of the adoption of this ordinance may be continued although such use does not conform to the provisions hereof.

6.7.2 Non-conforming buildings: The use of any building existing at the time of the adoption of this ordinance may be continued although such use does not conform to the provisions hereof. Such non-conforming use may be extended throughout a building.

7.00 - ADMINISTRATION

7.1 The Director of Campus Planning and Administration shall be responsible for the administration of this ordinance, the District Map, the Protected Landscape Areas Map, and the Campus Master Plan, all as hereafter amended and modified.

7.1.1 The Director is specifically granted authority to:

7.1.1.1 Assure that university projects are in compliance with the University Zoning Ordinance and Campus Master Plan, including Campus Planning Principles.

7.1.1.2 Approve the extension, reduction, revision or interpretation of a district or block boundary.

7.1.1.3 Approve the reconstruction of a non-conforming building that has been destroyed or partially destroyed.

7.1.1.4 Approve the erection and use of a building or the use of land in any location for an essential utility service, or allow for the enlargement, extension or relocation of these existing uses. All public utilities are excluded from this exception.

7.1.1.5 Interpret the provisions of this ordinance where the street layout actually on the ground varies from the street layout as shown on the Zoning District Map fixing the several areas.

7.1.1.6 Interpret the use of a planned building as to whether it is a building use that is permitted in the district for which it is desired to be erected, and to interpret as to whether the planned building will increase the ground area covered by buildings over

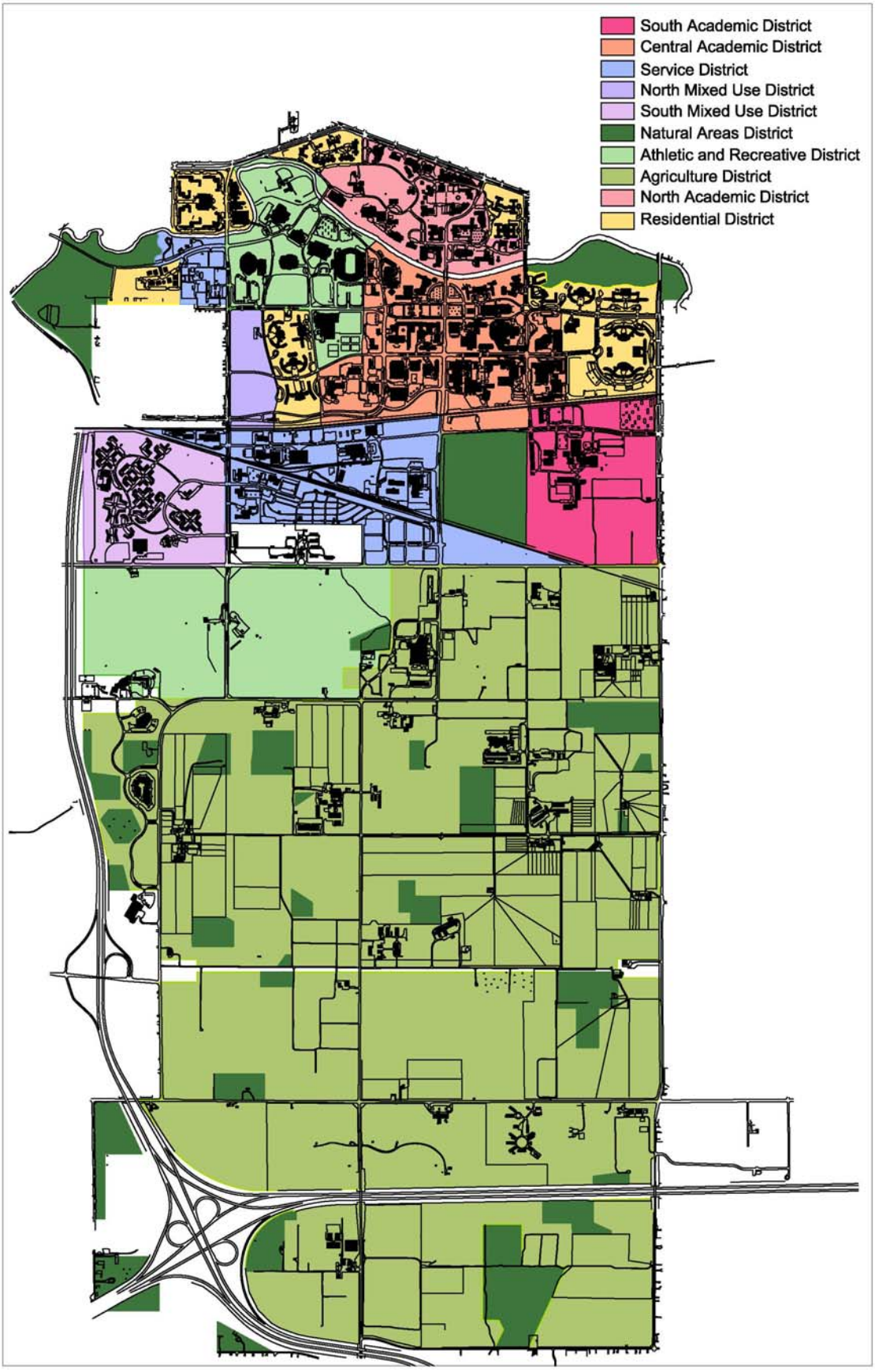
the maximum percentage allowed within the block in which it is planned to be erected.

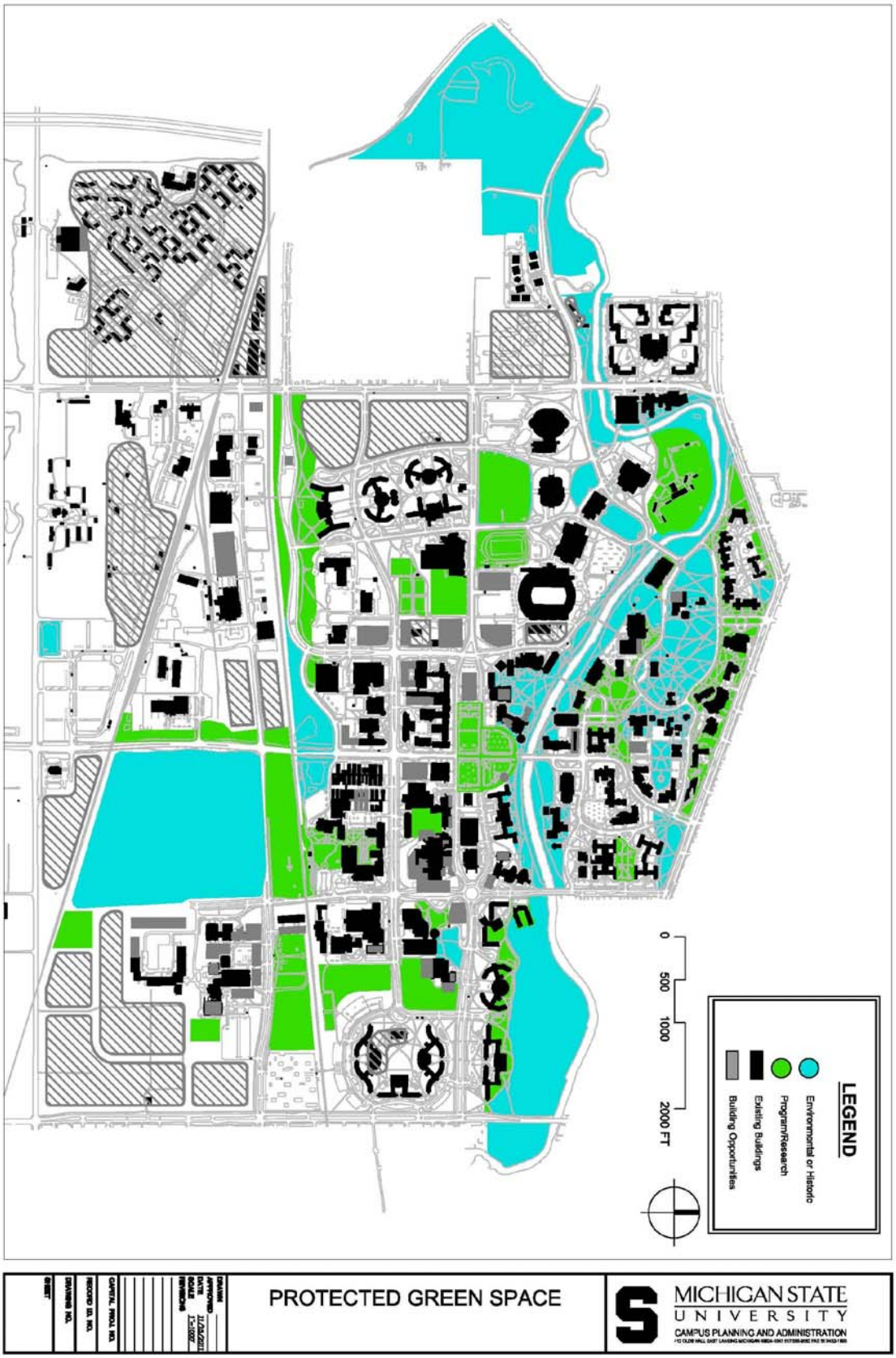
7.1.1.7 Approve the design of all modifications and improvements to Protected Landscape Areas.

7.1.1.8 Refer any specific request for a variance, amendment, interpretation, or other similar action as stated in the preceding paragraphs to the President and the Board of Trustees of Michigan State University for their decision and disposition.

8.00 - AMENDMENTS

8.1 This ordinance may be amended from time to time, either upon the recommendation of the Director of Campus Planning and Administration and with the approval of the President and the Board of Trustees, or by the Board of Trustees upon their own motion, and such amendments shall be equally effective as though incorporated in the Zoning District Map.


South Academic District
Central Academic District
Service District
North Mixed Use District
South Mixed Use District
Natural Areas District
Athletic and Recreative District
Agriculture District
North Academic District
Residential District


LEGEND
Environmental or Historic
Program/Research
Existing Buildings
Building Opportunities
0
500
1000
2000 FT
PROTECTED GREEN SPACE
MICHIGAN STATE
UNIVERSITY
CAMPUS PLANNING AND ADMINISTRATION