



THE UNIVERSITY
of
WISCONSIN
MADISON

CAMPUS MASTER PLAN 2005

RECREATING OURSELVES IN PLACE





LETTER FROM CHANCELLOR JOHN D. WILEY

The University of Wisconsin-Madison has arrived at a rare and exciting moment.

We have designed our legacy and defined our future through a campus master plan that will guide the evolution of the campus for many years to come.

Together, our campus community – working closely and cooperatively with our neighbors and local officials – has envisioned a campus that is more workable, more livable and more sustainable. It is this reinvented campus that will carry our teaching, research and service mission into the next decade and beyond.

We want a campus that is functional, one that balances the needs of teachers and students; of drivers and pedestrians; of needed redevelopment and inviting open spaces. We want a campus that responsibly marshals its resources by planning intelligently for campus renewal and anticipating future needs. This plan embodies those values and meets the challenge of recreating the campus in place.

Some of our older buildings will be ripe for renovation, while others that have outlived their usefulness will be targeted for removal to make way for new facilities and open spaces.

We are keenly aware that this campus is a treasured place, with its splendid lakeshore and university heritage. It is a fabulous setting, and we plan to create more on-campus spaces that define us, inspire us and symbolize our Wisconsin spirit.

Our long-term strategy takes into account needed new infrastructure, transportation and parking issues, utilities and open spaces. This integrated approach will help us create a more efficient campus, one that will continue to fulfill its mission in years to come. We also set an aesthetic tone by establishing architectural design guidelines that will give this campus and its various academic neighborhoods a coherent sense of place.

We recognize that this dynamic university is an important part of Madison and the world beyond, and we take that responsibility seriously. This plan helps us preserve the spirit and meaning of the Wisconsin Idea and carry it forward.

This campus master plan acknowledges our rich history and thoughtfully points the way to a more purposeful, well-designed campus and one that serves our needs as we advance into the future of learning, service and discovery.

John D. Wiley
Chancellor

PROCESS & OBSERVATIONS

The history of campus planning shows that the most enduring plans link the mission of a university and its physical campus. The campus master plan aspires to reflect in the physical environment the quality and importance of the institution and its mission.

This campus master plan began with an ambitious agenda:

- be grounded in our history
- respect the inherent beauty of our setting
- anticipate no significant change in our campus boundary or student enrollment
- appropriately accommodate our current and future facilities needs
- maintain the current capacity of parking spaces
- connect the intellectual and physical components of the institution
- increase space for research, teaching and student life functions

To address these issues, a broad cross section of the on- and off-campus community came together through a series of workshops. Together these groups assessed the campus history and existing conditions, established planning principles and over-arching development strategies, evaluated many design options, and refined proposed solutions. The process built a strong consensus around the plan's recommendations. This consensus will be crucial to implementation in years ahead.

Regional Planning Context & Coordination

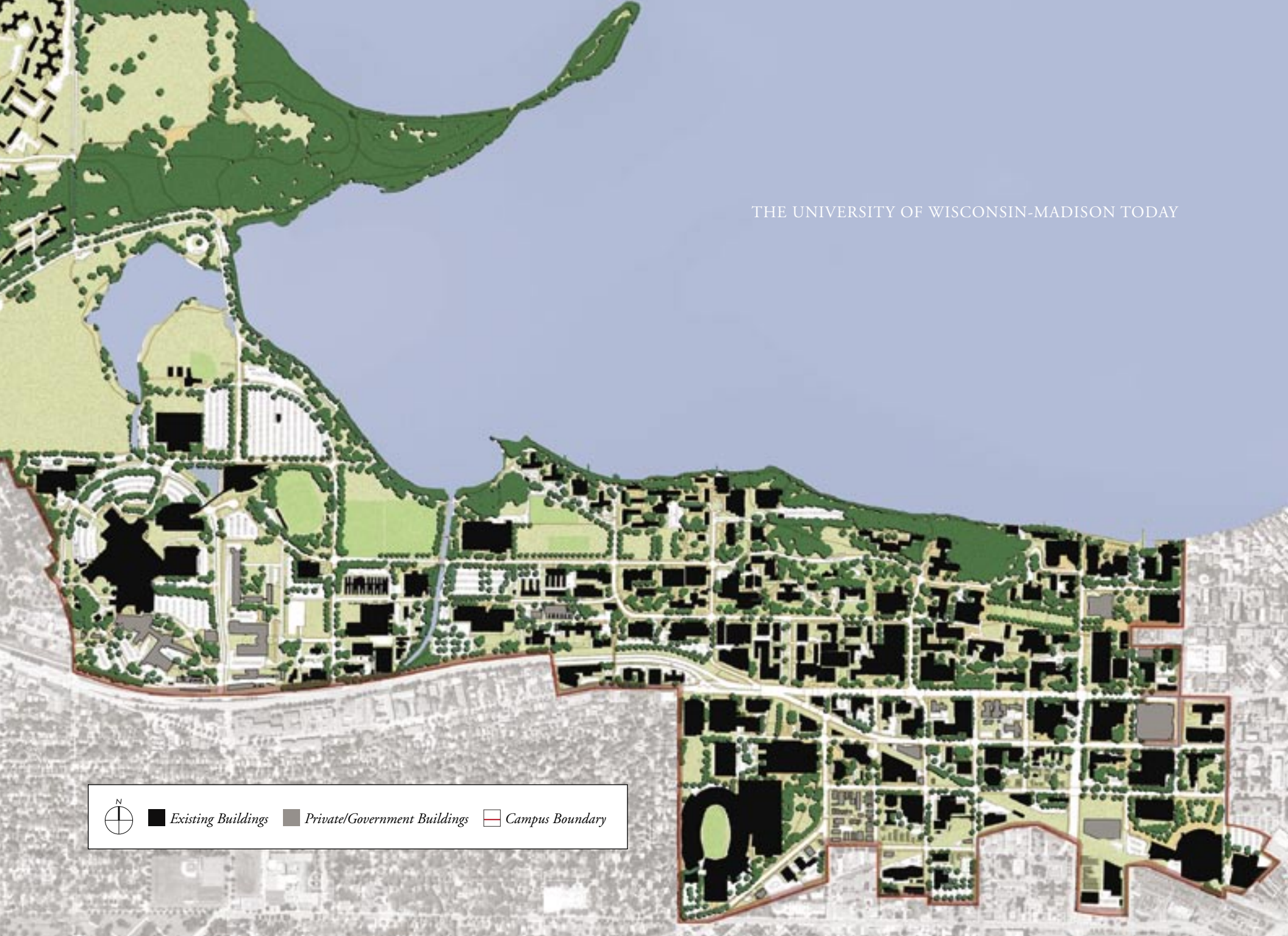
The university is located in Dane County, less than a mile from the state Capitol. Inland lakes create a narrow isthmus where concentrated development patterns exist within a scenic setting. The campus is well known for its location along three miles of shoreline on Lake Mendota. Madison, with a population of almost a quarter million, is routinely rated as one of the most livable cities in America.

Founded in 1848, the campus currently enrolls over 40,000 students each year, has 18,000 faculty/staff, and has an annual budget of over \$1.8 billion. The campus has more than 18.5 million gross square feet in over 240 major buildings, on the 933 acres of the main campus.

The plan must be taken in context with local and regional planning efforts as well. Both Dane County and the city of Madison recognize that the university is a key player in the area, as a major employer, a driver of transportation needs and as an economic engine. Recent reports show the impact of the UW-Madison campus on the regional economy was more than \$4.7 billion in 2002. The university and local government planners continue to coordinate efforts closely as each begins to implement their new comprehensive plans.



THE UNIVERSITY OF WISCONSIN-MADISON TODAY



  Existing Buildings  Private/Government Buildings  Campus Boundary

PLANNING PRINCIPLES

A series of planning principles directed the plan. Supported by the UW System Board of Regents' physical planning principles and by the campus strategic plan, these principles helped develop a master plan that will sustain and strengthen our position of pre-eminence in research and higher education.

A Spectacular Setting

The university is privileged to have an extraordinary setting. Future development should capitalize on our magnificent lakefront setting and wonderful natural areas while preserving, enhancing and sustaining those environments for future generations.

Enhancing Experience of Place

The plan should promote a clear sense of place, respect the history and diversity of the university, and stimulate the academic and social growth of the university community. The plan should commit to the historic preservation of key buildings and open spaces that make this place a stimulating learning environment.

Protecting our Environment

The university's environmental ethic is found throughout its history from our early ties to John Muir and Aldo Leopold's land ethic to noted landscape architect Jens Jenson. We will continue that tradition through our commitment to preserving environmentally sensitive areas, the development of sustainable design guidelines, building sustainable facilities, and by reducing our impact on the land.

Developing Connections

The plan should foster our academic mission by supporting and creating interdisciplinary connections between the academic enterprises, on and off the main campus. Pedestrian spaces, bicycle routes, transit ways, open spaces, and the general campus infrastructure should be physically connected to provide efficient and attractive linkages. The campus buildings and connections between them should strengthen our mission and support the constant "sifting and winnowing" of knowledge and experience. Specific strategies should be developed to improve connections across the long east-west campus setting and across the north-south divide created by heavy traffic on University Avenue and West Johnson Street.

Edges and Boundaries

The edges of the campus should be clearly delineated and well-defined to create an identifiable and welcoming campus boundary with a sense of arrival, inviting the surrounding community to participate in educational and entertainment events. The plan should reinforce the gateways and activity centers, both on and off campus, to enhance connections between the university and the community. No significant changes to our current, official boundary are proposed, so we must "recreate ourselves in place."

Our Regional Community

The plan should enhance available connections between the university and the surrounding region and should help facilitate lifelong learning. The university's future development should support local and regional planning strategies dealing with growth and development issues, with particular respect to transportation systems planning, adjacent neighborhood plans, economic growth and environmental impacts.



CAMPUS MASTER PLAN

The 2005 Campus Master Plan guides campus development for the next 20 years and beyond. Growth in our facilities will occur without significant increases in our student populations. We will expand our capacity for cutting edge research, replace obsolete and costly to maintain facilities, and decompress overcrowded spaces where needed. We will restore and reuse many of our most historic buildings and continue to expand and improve our facilities for student services.

The planning process has been highly interactive, resulting in significant consensus and support from a wide range of constituency groups both on and off campus. We analyzed our facilities to assure they are being used for their highest and best use in support of our academic and research mission. We need to recreate ourselves in place without expanding our official campus boundary. To accomplish this, we will increase building density on the west campus creating a more traditional campus setting for the health sciences. We will build more compact structured parking across campus replacing inefficient surface parking in order to open up land for more green space and future building development.

West Campus

We will increase building density, replacing single-story buildings in the near west campus to tie the west and central campus together in a more traditional campus setting. We will add housing in the lakeshore residence hall area to alleviate the chronic shortage of on-campus housing capacity for first-year students.

Central Campus

Buildings along the south side of Linden Drive, from Charter Street to Henry Mall, will be redeveloped to better meet program needs and create a more pedestrian-friendly environment along Linden Drive. We will redevelop the Union South area and 1200 and 1300 blocks of University Avenue in support of the governor's initiative for the Wisconsin Institute for Discovery, a planned interdisciplinary biology research center. We will consolidate and move Physical Plant services to the Lot 51 area to make way for the construction of the institute. We will redevelop the Union South block to support student and faculty needs for meeting space, guest facilities, food service, open space and parking.

East Campus

We will support the redevelopment of the Arts and Humanities District in the lower campus with an addition to the Chazen Museum of Art and new Music Performance and School of Music facilities. In doing so, we will promote an understanding of different cultures and societies through an enriched arts and humanities program. The lower campus redevelopment will benefit by the development of the East Campus Mall, a lively new urban pedestrian landscape connecting Regent Street to the south with Lake Mendota to the north.

The plan will create development opportunities for new academic buildings in the 900 block of West Dayton and West Johnson streets and on the north side of the 1200 block of Spring Street. Over the next 20 years, we will remove inefficient and obsolete 1960s and 1970s era buildings, including Brogden Hall, Humanities, Van Hise Hall, Biotron, the Engineering Research Building and others, to allow for the development of new sustainable academic facilities.

We will add hundreds of street trees to create a more green campus within the urban streets south of University Avenue which we believe will also serve to slow traffic as it passes through campus.



The plan's four major components include recommendations for buildings, open space, transportation and utility systems. A series of master plan goals provided direction for the plan.

MASTER PLAN GOALS

GOAL #1 - SUSTAINABILITY

Protect, enhance and celebrate our lakeside setting. Develop sustainability guidelines using "green" building materials and techniques. Reduce our impact on the land and better manage energy use.

GOAL #2 - COMMUNITY, ACADEMIC AND RESEARCH CONNECTIONS

Promote the Wisconsin Idea by enhancing community connections. Define our borders and enliven streetscapes with more trees and more public gathering places. Make boundaries inviting and transparent, providing a sense of arrival. Enhance academic connections by replacing aging buildings, adding research space, improving the quality and providing more room in our existing academic facilities. Promote interdisciplinary learning and research with new facilities.

GOAL #3 - STUDENT LIFE

Renew a commitment to student-life by renovating, rebuilding or restoring our unions and adding recreation facilities. Add on-campus housing space and continue to promote learning communities. Create new outdoor spaces for informal student gatherings.

GOAL #4 - BUILDINGS AND DESIGN GUIDELINES

Renew campus by removing obsolete buildings that cannot be renovated. Provide new buildings that are flexible enough to

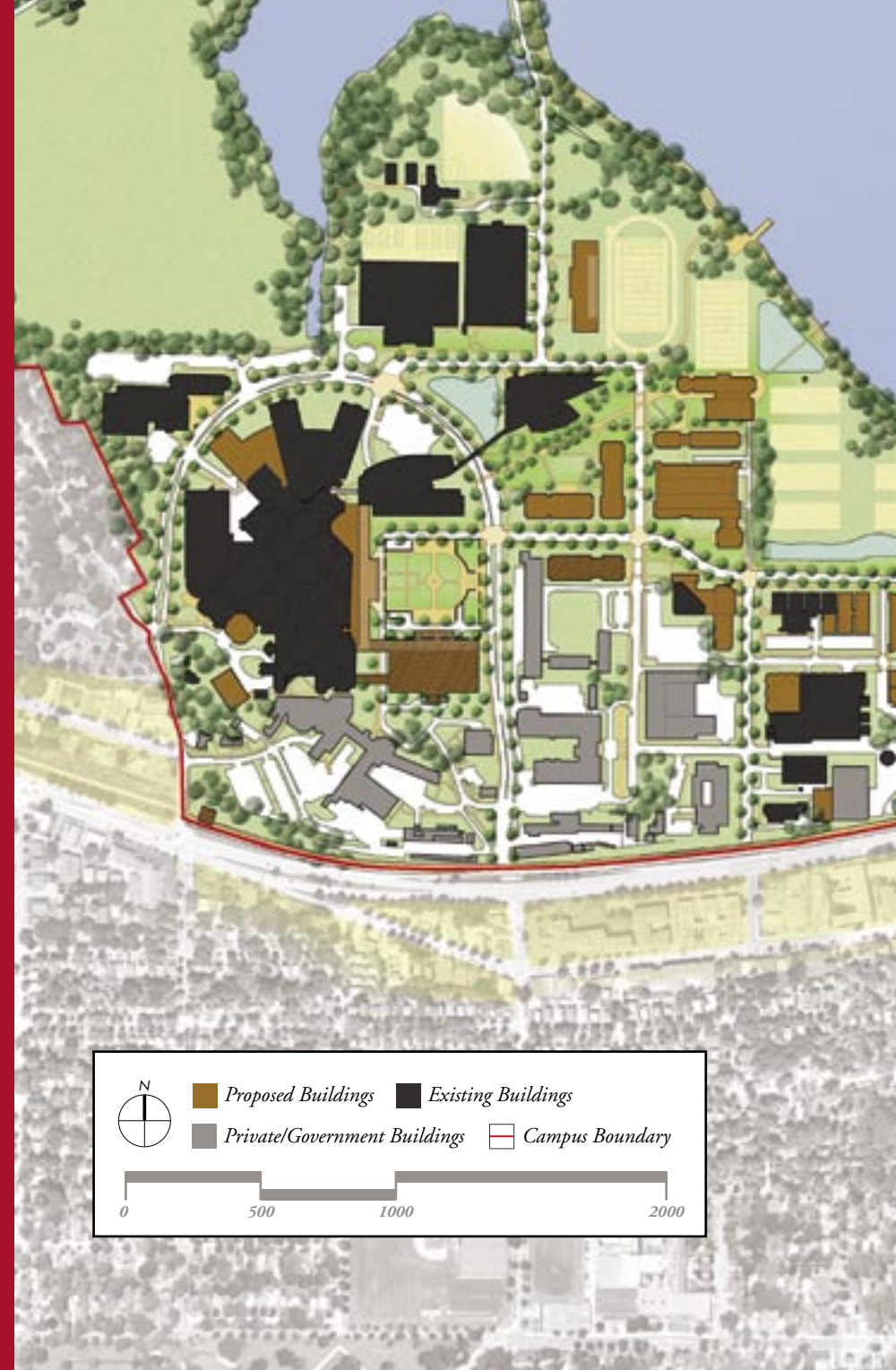
be used for at least a century. Preserve significant historic buildings. Organize the near-west campus to connect the central campus with the west campus. Improve connections in the south campus to the Vilas and Greenbush neighborhoods and Regent Street. Define existing neighborhoods of design to ensure that new buildings fit into their campus context. Develop comprehensive design guidelines to provide architectural coherence.

GOAL #5 - OPEN SPACE

Protect and enhance existing open spaces and create new gathering areas. Maintain lands in the Lakeshore Nature Preserve as natural areas that support our mission of teaching, research and outreach. Protect and enhance known historic cultural landscapes, quadrangles and courtyards.

GOAL #6 - TRANSPORTATION AND UTILITIES

Provide attractive options to driving alone. Maintain parking capacity at approximately 13,000 spaces, yet free up space by building more ramps. Provide more pedestrian areas, bike lanes, connected paths and bicycle commuter facilities. Plan for future development of commuter rail and streetcars. Improve streets, making them safer and pedestrian friendly. Provide a reliable utility network to meet current and future demands. Plan for future utility corridors, taking into account new building needs and existing corridors. Investigate use of alternative fuel sources for heating plants and fleet vehicles.





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CAMPUS MASTER PLAN 2005



BUILDINGS

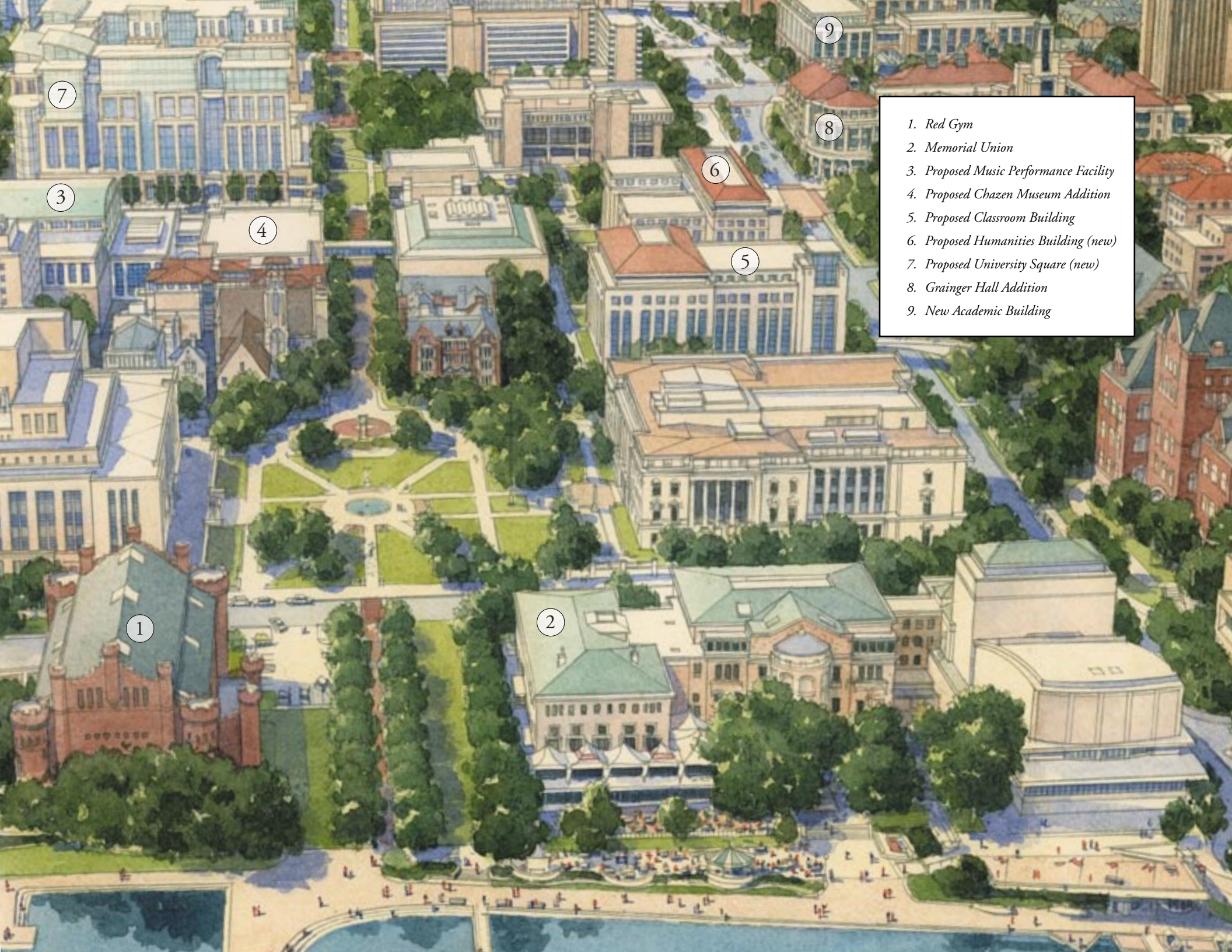
A functional, attractive campus contributes to the ongoing success in higher education's competitive environment. Today's cutting-edge work of teaching, research and outreach is different, more demanding and requires larger more flexible interiors than in the past. To continue to thrive, our facilities must be periodically renovated and remodeled to serve current needs.

The rapid growth of campus in the post-WWII era has left us with many outmoded facilities – built for an obsolete single use, with an extreme emphasis on economy of construction rather than flexibility. These 40 year old buildings are now at the functional end of their use and are costly to heat, cool, repair and maintain. To serve the campus' current and future needs, many of these facilities must be updated or replaced. Existing buildings were evaluated based on their current physical integrity and the condition of their major systems, including HVAC, windows, roofs, walls, exterior finish, electrical, plumbing, and code compliance. Existing buildings were also analyzed for their ability to be either downgraded or upgraded from their current use to meet a variety of program needs. Clearly, additional buildings will be required to keep pace with the growth of programs, especially in our research facilities.

The massing, scale, and character of campus buildings are crucial to good open space development and contribute to a strong sense of identity. This campus has two distinct scales of buildings – those that define a traditional, residentially scaled campus and those that house the large and demanding programs found in a modern urban research university. Regardless of size and function, all campus buildings share the responsibility to create an environment that is humane in scale and elegant in detail. As part of the overall master plan process, a set of design guidelines have been developed to help define specific characteristics of new buildings and how they should be integrated into the campus setting of which they are a part. A great campus such as the University of Wisconsin-Madison is most memorable and vibrant due to the balance between its buildings and open spaces.



Above - Before, East Campus Mall; Right - After, East Campus Mall



7

3

4

1

2

6

5

8

9

- 1. *Red Gym*
- 2. *Memorial Union*
- 3. *Proposed Music Performance Facility*
- 4. *Proposed Chazen Museum Addition*
- 5. *Proposed Classroom Building*
- 6. *Proposed Humanities Building (new)*
- 7. *Proposed University Square (new)*
- 8. *Grainger Hall Addition*
- 9. *New Academic Building*

OPEN SPACE

The campus' spectacular lakefront setting is its greatest physical asset. The natural areas, historic landscapes and public spaces are the places that create astounding first impressions and lasting memories for those who visit, work, and learn at this institution. They are the essence of its physical quality and its greatest hope for the future recreation of the campus environment.

The master plan approach to open space has three aims: we will preserve, protect and rehabilitate existing open spaces; we will create new quality open spaces and renovate existing spaces; and we will transform the existing street grid into urban open space corridors that connect our buildings and open spaces with tree lined streets and small outdoor gathering areas.

PROTECT, PRESERVE AND REHABILITATE EXISTING OPEN SPACES

To preserve precious natural areas along the lakeshore and to concentrate growth in a more dense pattern in the central campus, we will continue to promote the concept of a minimal development zone. This area comprises all land north of a line from University Bay Drive on the west, just north of the Waisman Center, to Walnut Street running north of the Rennebohm Pharmacy building, following Walnut Street around to Observatory Drive; east on Observatory Drive to North Park Street and north to Lake Mendota. Facilities development projects within these areas will receive a higher level of review as to their impacts.

The Lakeshore Nature Preserve - A separate master plan that focuses on the Lakeshore Nature Preserve has been developed concurrent with the overall campus master plan. Inventory, analysis and recommendations for the areas are contained in that report. The overall campus master plan calls for those spaces to be carefully managed; protecting, preserving and in some cases removing inappropriate uses from within the Lakeshore Nature Preserve area or around its perimeter is key to the plan. Our intent is to use these natural areas as an outdoor learning and research laboratory for all to use and enjoy. In some areas, we will open views to Lake Mendota by removing non-native, invasive vegetation. In other areas, evolving networks of prairie, woodland, marshland and savannah will be maintained or created to study the progression of plants, animals and their environment in this urban ecosystem. All the while, the social and cultural aspects of natural areas are preserved.



Top - Before, Lakeshore Residence Halls; Bottom- After, Lakeshore Residence Halls

OPEN SPACE SYSTEMS AT UW-MADISON



- 1. *Class of 1918 Marsh*
- 2. *Eagle Heights Community Gardens*
- 3. *Picnic Point*
- 4. *Frautschi Point*
- 5. *Willow Creek*
- 6. *Temin Lakeshore Path*
- 7. *Henry Mall*
- 8. *Muir Woods*
- 9. *Bascom Hill*
- 10. *Library Mall*
- 11. *Memorial Union Terrace*
- 12. *Recreation Fields*
- 13. *Linden Drive Mall*

The Cultural Landscapes - The cultural landscapes on campus are defined as outdoor places where stories related to past activities can bring the history of these places to life for people who use, visit, and explore these sites today. From the Memorial Union Terrace and Library Mall, to Bascom Mall and Henry Mall, all the way to Picnic Point and Eagle Heights, spaces across campus provide a great sense of culture and history. A master plan process specific to identifying and managing our cultural landscape resources is concurrent with the overall campus master plan process. A detailed inventory, analysis and recommendations for these areas and sites are contained in that report. All new developments will be planned in accordance with this framework.

CREATE QUALITY OPEN SPACES

Quadrangles and courtyards are open spaces that enable collegial interaction, allowing people to meet informally or accidentally. They are identifiable “places” within the campus fabric that keep us in touch with the outside world and each other. The open spaces are as essential to the quality of the university environment, and as directly, the quality of innovation, research and learning that occur there. The master plan introduces over 17 acres of new open spaces. These spaces have a certain spatial sensibility that relate to the size, proportion and surrounding enclosure created by buildings. Spaces that are more human scale, that have more detail and support formal or informal social interaction, are more apt to be pleasing to the user. Specific recommendations relative to building placement, scale and relationship to open spaces is included in the design guidelines component of the master plan.

TRANSFORM EXISTING STREET CORRIDORS INTO OPEN-SPACE LINKAGES

Much of the campus south of University Avenue exists within the original urban city street grid. Heavy traffic volumes are present throughout the day and are extreme in the peak traffic periods. Cross streets are essential to local traffic patterns; these streets will remain part of the campus environment and need to be supplemented with more mid-block north-south pedestrian crossings. They represent a particular challenge and opportunity. Re-design of public and campus streets can improve pedestrian, bicycle and transit circulation and beautify these transportation corridors. These redeveloped corridors will reconnect all areas of the campus and support the distinction of campus from the surrounding city. We will add hundreds of new street trees to help improve the aesthetics of the street corridors and to help slow traffic.



Above - Before, Wisconsin Institute of Discovery Block; Right - After, Wisconsin Institute of Discovery Block



1. *Wisconsin Institute for Discovery*
2. *Union South (new)*
3. *Parking Ramp at Union South*
4. *New Academic Building*
5. *Chemistry Building*
6. *Chamberlin Hall*
7. *Medical Sciences Center*
8. *Biotech-Genetics*

TRANSPORTATION

A Long Range Transportation Plan, including a Transportation Demand Management (TDM) Plan has been developed in concert with the physical facilities master plan for the campus. As with the physical master plan, it identifies short- and long-term goals and recommended improvements. The development of the plan was a collaborative effort, involving meetings with groups across the campus and several public agencies, including the city of Madison, Metro Transit and the Madison Area Metropolitan Planning Organization. These meetings, together with a comprehensive motivational survey of how and why people in the university community travel to, from and around the campus, formed the basis for the plan. The recommendations are divided into two sections: travel to and from campus; and travel around campus.

Travel to and from Campus - The overarching goal of the plan is to provide the campus with affordable, customer-oriented alternatives to driving alone in a car. The university plans to develop even more options and more convenient ways for people to use transportation alternatives. The plan details improvements to transit service to the campus, including recommendations for express bus service, increased park-and-ride sites, and expanded service into neighboring communities. Central to our transportation plan is the ability to offer a free bus pass to all 58,000 students, faculty and staff, which allows full access to Madison Metro services.

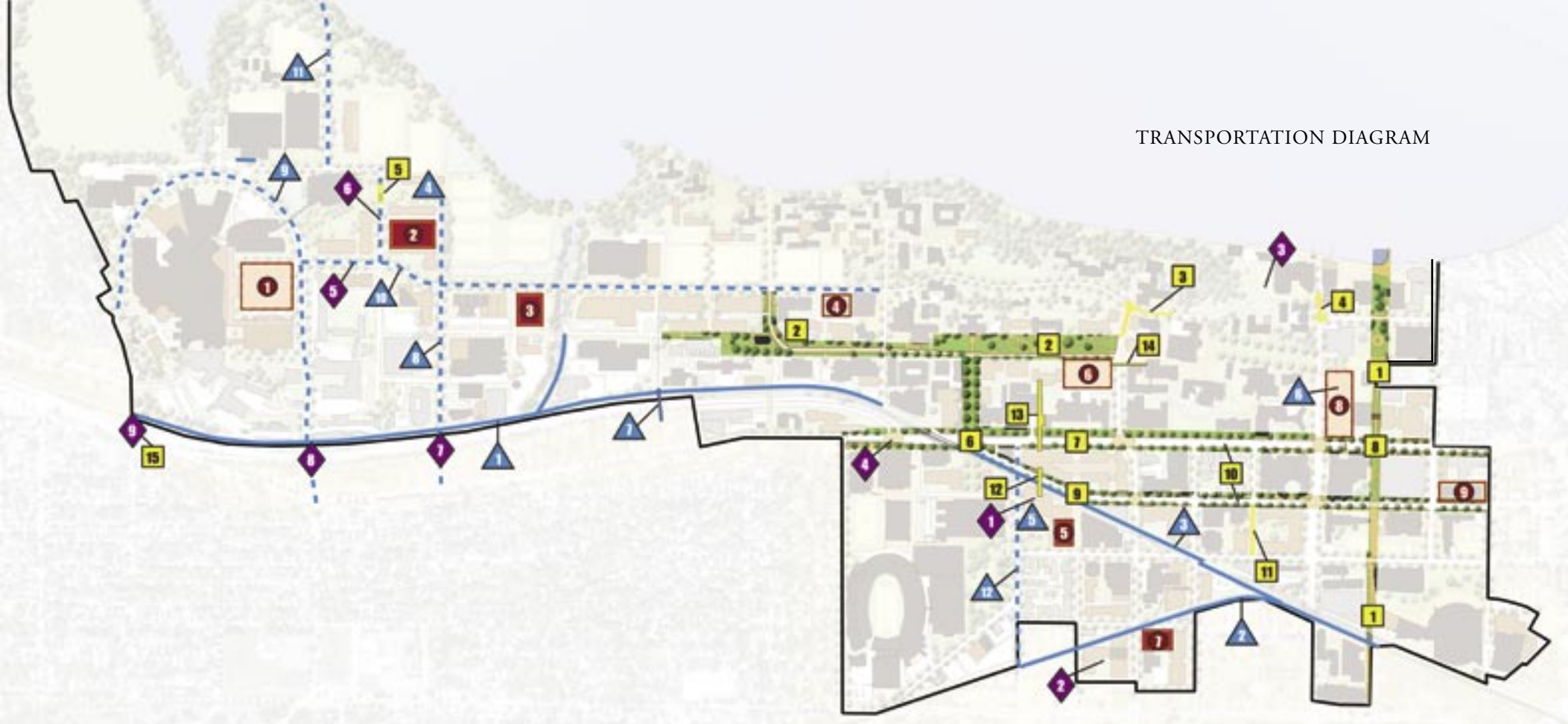
The plan also identifies station locations and possible routes for potential commuter rail and streetcar service. It includes recommendations for improved multi-use path connectivity for pedestrians and bicycles, particularly an extension of the Southwest Bike Path along the railroad right of way to the engineering campus, and a new pedestrian and bicycle path to the north of Campus Drive. These improvements will be accompanied by new amenities such as bike stations, showers in new buildings and more covered bicycle parking. The plan also recommends addition of a pedestrian and bicycle bridge over Campus Drive, connecting to the bicycle route on Kendall Avenue via Chamberlain Avenue, down to Linden Drive just east of Veterinary Medicine.

Another central component of the plan is the increased availability of information regarding alternate modes of traveling to and from the campus, including an interactive website hosting both information and online user groups and printed material such as a campus bike map. The university will also work with city officials in support of housing incentive programs for faculty and staff to purchase homes closer to campus so they can take full advantage of transportation alternatives.

The plan recognizes that for many, the automobile will continue to be the commuters' mode of choice. The plan includes new, structured parking to continue to provide approximately 13,000 campus parking spaces across campus, while surface parking lots are redeveloped into building sites and campus open spaces.



TRANSPORTATION DIAGRAM



BICYCLE IMPROVEMENTS

1. Campus Dr. Path
2. Extension of Southwest Bike Path ("Missing Link")
3. Extension of SW Path along Rail ROW
4. Bicycle Station at Union West
5. Bicycle Station at Union South
6. Bicycle Station at Humanities
7. Ped/Bicycle Bridge across Campus Dr.
8. Bicycle Lanes on Walnut St.
9. Bicycle Lanes, Traffic Calming on Highland Ave.
10. Bicycle Lanes on Observatory Dr.
11. Bicycle Lanes on University Bay Dr.
12. Bicycle Lanes on Randall Ave.

PEDESTRIAN IMPROVEMENTS

1. East Campus Mall
2. Conversion of Linden Dr. to Ped, Bike, Transit Mall
3. Pedestrian Priority Streetscape on Observatory Dr.
4. Pedestrian Priority Streetscape on Langdon
5. Pedestrian Priority Streetscape at Union West
6. Relocation of Babcock Crossing to connect Henry Mall and Engineering Mall
7. Signal, Crosswalk on University Ave at MSC/WID
8. Signal, Crosswalk on University Ave. at East Campus Mall

9. Signal, Crosswalk on Johnson St. at Orchard St.
10. Traffic Calming and Streetscape improvements on University Ave. and Johnson St.
11. Conversion of Brooks St. to Ped and Bike Corridor - Dayton St. to Johnson St.
12. Pedestrian Bridge across Johnson St. between Union South & WID
13. Pedestrian Bridge across University Ave. between WID and MSC Area
14. Pedestrian Bridge across Charter St. from Van Vleck to New Building north of MSC
15. Ped/Bicycle Bridge across University Ave. at Farley and University Bay Dr.

ROADWAY IMPROVEMENTS

1. Vacation of Johnson St. - Randall Ave. to Campus Dr.
2. Vacation of Capitol Ct. - Orchard St. to Charter St.
3. Improved Switchback on Observatory Dr.
4. Reconfiguration of Intersection of University Ave. and Campus Dr.
5. Extension of Observatory Dr.
6. New North-South Road between Observatory Dr. Extended and Walnut St.
7. East-Bound Ramps on Campus Dr. at Walnut St.
8. Ramp Improvements at Highland Ave.
9. Improvements to University Ave. and University Bay Dr., Farley Intersection

PARKING IMPROVEMENTS

1. CSC Visitor Ramp Replacement
2. Union West Ramp
3. Biotron Site Ramp
4. Steenbock Ramp (Lot 36) Expansion
5. Union South Ramp
6. Linden Dr. South Under-Building Ramp
7. Physical Plant Parking (Lot 51 Replacement)
8. New Humanities Under-Building Ramp
9. SE Public Ramp (Lot 46) Expansion

Travel Around Campus

The plan makes several recommendations for improving travel within campus. It establishes the goal of creating a transit system that allows travel to anywhere on the campus within the 15-minute class change time. This goal will be achieved through both increased bus and transit frequency and improved routes. Since some people drive to campus because existing transit systems do not work for them due to frequent meetings across the campus, the plan concentrates on improving the intra-campus transit system.

Bicycle travel on the campus will be improved through increased connectivity, including several miles of new bike lanes and paths as well as the cyclist amenities mentioned above. In particular, improvements to a rebuilt Observatory Drive that includes bike lanes, will easily connect the central core of the campus with the health sciences facilities on the west campus.

Many of the on-campus elements of the plan focus on improvements to pedestrian circulation. The centerpiece of these improvements is the phased conversion of Linden Drive to a pedestrian corridor with very limited vehicle access. This will not only improve the quality and safety of the corridor, but also introduce a central pedestrian artery along what is now a road. The plan recommends the expansion of the sidewalk along University Avenue and West Johnson Street to better accommodate the existing pedestrian flows at the same time that the streetscape is enhanced with added trees for shade and beauty. As part of this initiative, several improvements will increase pedestrian safety along these corridors and reduce vehicle speeding. Also included are several new signalized midblock crossings of University Avenue and West Johnson Street and improvements generally to other crossings on the campus.

Improvements elsewhere include the creation of pedestrian priority zones on Observatory Drive near Social Sciences and Bascom Hall; improvements to sidewalk and building accessibility; the enhancement and expansion of West Campus pedestrian facilities; addition of several pedestrian bridges at high-traffic locations over Charter Street and University Avenue and West Johnson Street, primarily in conjunction with the new Union South and Wisconsin Institute for Discovery development; and the reconfiguration of the Campus Drive/University Avenue intersection to slow traffic entering the campus from the west and to create a safer and more direct crossing between Babcock Drive and the engineering campus.



Above - Before, West Medical Campus; Right - After, West Medical Campus



- 1. WARF Building
- 2. Veterans Hospital
- 3. Proposed Hospital Expansion
- 4. Proposed Academic Building
- 5. Proposed Parking Ramp
- 6. Proposed West Campus Union
- 7. Proposed School of Nursing
- 8. School of Pharmacy Building
- 9. Proposed Hospital Entry Courtyard
- 10. Health Science Learning Center
- 11. Interdisciplinary Research Center
- 12. UW Hospital & Clinics

UTILITIES

The university has a combination of self-generated, municipal and utility-owned systems that comprise the utility services on campus. The primary utilities studied include steam and condensate, compressed air, chilled water, electric power, information technology systems, sanitary sewer, domestic water and storm sewer.

Existing System Upgrades

A number of existing systems require upgrades to improve reliability and operation. Improvements include:

- Upgrade boiler controls for increased efficiency and operation
- Alleviate piping bottlenecks in select areas of campus
- Replace aging equipment with more sustainable, modern equipment in central plants
- Add metering at all buildings to improve monitoring and benchmarking of consumption
- Reinforce the electric distribution system and improve system monitoring
- Add substation capacity to increase flexibility and reliability
- Relocate signal cabling from steam tunnels
- Improve water and sewer system reliability by replacing older, obsolete piping materials and adding isolation valves
- Improve quality of storm water effluent

Utility Planning Principles

Future utility systems on campus will be guided by the following principles:

- Create a high level of reliability and redundancy
- Implement planned phase out of old equipment
- Maximize energy efficiency, minimize energy cost and maintenance
- Maintain flexibility for future technologies
- Coordinate utility distribution systems with building/transportation plans
- Investigate alternative energy resources
- Reduce or manage improved environmental impacts on air, land and water quality
- Coordinate utility system design and construction with campus master plan to maintain campus aesthetics

Utility Load Impact of Master Plan

Renovation and expansion of campus facilities will significantly increase the demand on the utility infrastructure. Growth in the utility load is attributed to the additional gross square feet of building space as well as the need to meet current health and safety requirements, especially in campus research labs. In an effort to minimize this new load impact, the UW will continue to minimize and control energy consumption.

Proposed Utility Expansions

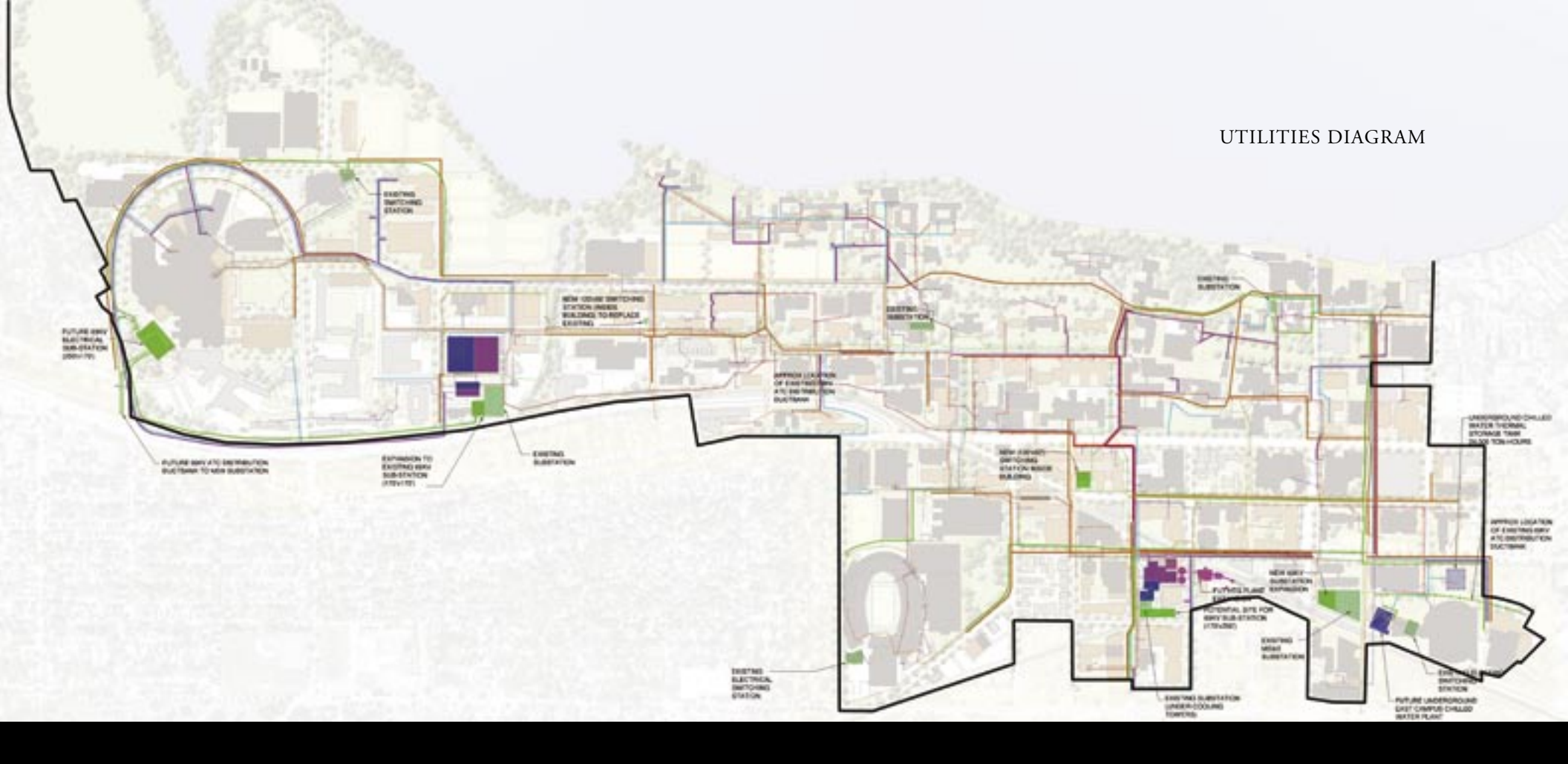
Increased utility demands on campus will require additional capacity and new substations, as well as improvements to existing plants and expansion of the utility distribution systems. The major efforts include:

- A new electrical substation to improve reliability for the UW Hospital and our health science facilities
- Chiller expansions at the West Campus Cogeneration Facility
- A new chilled water plant and thermal storage system on the east end of campus to meet new capacity demands without expensive replacement of the existing distribution system
- Construction of major utility distribution system extensions and selected relocations
- Higher efficiency boilers/power generation at Charter Street using “clean coal” technology, including a new coal storage facility or the use of alternative fuels
- Consideration of purchasing electrical power at a higher voltage (69 kV)
- Adoption of Best Management Practices to improve storm water quality and reduce the quantity of sediment and pollutants entering the lakes

In addition to these improvements, the University remains committed to investigating options for renewable energy and sustainable design, including:

- Increasing the co-firing of coal boilers with renewable biomass energy resources
- Wind power (purchased off-site through local utility providers)
- Fuel cell technology
- Energy conservation and daylighting concepts

UTILITIES DIAGRAM



Service	Current 2005 Estimated Peak Load	Projected 20 Year Load *	Current Firm Production Capacity
Steam/Condensate	810,000 #/hr	1,400,000 #/hr	1,600,000 #/hr
Chilled Water	42,000 Tons	85,000 Tons	55,500 Tons
Compressed Air	3,050 SCFM	3,500 SCFM	6,100 SCFM
Electric Power	74,600 KVA	136,000 KVA	NA
Domestic Water	3.2 MGD	5.3 MGD	NA

- Chilled Water
- Future Chilled Water
- Electrical
- Future Electrical
- Steam
- Future Steam
- Communications
- Future Communications
- Compressed Air
- Future Compressed Air

* Projected loads correspond to Master Plan Phases 1 through Phase 3

CONCLUSION

In the coming 20 years of planning and development at the UW-Madison, the 2005 Campus Master Plan will be our general guide on which green spaces to preserve, which open spaces to enhance, where to build, where not to build, and what our buildings should look like. The plan will give us direction on how to successfully implement transportation systems. It will establish utility corridors and assure that campus facilities will be served by needed services. In all that we do, we will assure that sustainability is key by protecting our precious natural resources and constructing buildings that meet certified standards for sustainable design and development.

Priorities for planning and development:

- Expand and redevelop the Arts and Humanities campus.
- Provide university housing for all first-year students who choose to live on campus.
- Complete the Wisconsin Institute for Discovery and the redevelopment of the Union South block.
- Implement design guidelines and a design review board.
- Provide expanded and improved facilities for bicycles and pedestrians.
- Move surface parking spaces into structured ramp parking in key locations.
- Allow for health sciences campus expansions with greater density around open gathering spaces.
- Redevelop the Agriculture campus with more density, especially on the west end.
- Redevelop the Linden Drive corridor, reestablishing the “Greater Mall” open space concept and pedestrian features.
- Partner with US Veterans Administration and the USDA Forest Products Lab on new buildings and/or parking facilities.

We will provide connections allowing individuals to easily traverse the campus and extend a sense of welcome to our visitors by making our boundaries identifiable, yet transparent and open to all. We will support our mission by providing facilities that meet the demands of teaching and scientific study. We will support student life by providing on-campus housing opportunities, and by rebuilding and restoring our unions and recreation facilities.



ACKNOWLEDGEMENTS

UW-Madison Campus Administration

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Peter D. Spear, Provost and Vice Chancellor for Academic Affairs
Darrell L. Bazzell, Vice Chancellor for Administration

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Gary Brown, Director – Planning & Landscape Architecture
David Drummond, Director – Safety Department
Gwendolyn Drury, Program & Planning Analyst - Planning & Landscape Architecture
John Harrod, Director – Physical Plant
Lance Lunsway, Director – Transportation Services
Daniel Okoli, Director – Major Projects & University Architect
Douglas Rose, Director – Space Management Office
Dorothy Steele, Director – Business & Staff Services
Julie Grove, Project Manager – Major Projects
Peter Heaslett, Project Manager – Major Projects
Robert Kennedy, Transportation Planner – Planning & Landscape Architecture

Campus Master Plan Technical Coordinating Committee

Campus Master Plan Executive Leadership Team

Wisconsin Department of Administration/Division of State Facilities – Sam Calvin

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Ken Saiki Design

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Affiliated Engineers, Inc.

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Facilities Planning & Management
University of Wisconsin - Madison
610 Walnut Street, Suite 856
Madison, WI 53726-2397
www.fpm.wisc.edu



ARCHITECTS + PLANNERS

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