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The University of Wisconsin-Milwaukee Master Plan provides a framework to guide the University’s development over time. It is best understood as a physical expression of the University’s academic plan and strategic goals. The university environment envisioned by the Master Plan will affirm the realization of these goals and objectives. In particular, the plan seeks to ensure that the people needed to further the mission, both those already on campus and potential new recruits, will have access to the academic, research, and support facilities they need to succeed.

The plan comes at an unprecedented time in UWM history. Not only is it the first planning effort to be undertaken in over 30 years, it has gained broad State support, as evidenced by the State appropriation of $240 million for investment. This commitment underscores the important role that UWM plays not only in the Milwaukee region but for the people of Wisconsin as a whole.

The Master Plan is the result of a highly collaborative process, a reflection of UWM's shared governance model, and enriched by the broad consultation of campus and community constituents. The product is the outcome of over 20 months of collaboration and over 200 meetings. The vision represented in the Master Plan is also grounded in a rigorous examination of existing conditions and data analysis.

The Master Plan establishes a vision for the long-term development of the Kenwood campus and provides flexibility at the Opportunity Sites, those locations identified beyond Kenwood to address a number of practical needs and strategic objectives. Overall, the Master Plan ends with less certainty than many plans, given shifting priorities, evolving University initiatives, market opportunities, and a lack of landholdings. While consensus has formed around many of the Master Plan recommendations, still debate continues, particularly with regard to transportation and the Opportunity Sites. This debate is evidence of the evolution of a planning culture at UWM – one of the most essential and enduring legacies of the Master Plan.
EXECUTIVE SUMMARY
EXECUTIVE SUMMARY

MASTER PLAN VISION

The University of Wisconsin-Milwaukee (UWM) Master Plan establishes a vision for a vibrant institution that is rooted in the academic and research missions, and advances UWM’s role in community and economic development within the region and State. The vision requires the successful coordination of a variety of land and building use components, along with academic planning and financial planning, to create a rigorous and defensible Master Plan. Collectively, these provide the foundation for a unified and comprehensive Master Plan that reinforces the values and goals of the campus community and creates varied and rich learning environments across the greater Milwaukee region.
**GUIDING PRINCIPLES**

The Guiding Principles for the Master Plan are the translation of UWM’s values and aspirations into planning criteria. They represent the input of the Master Plan Coordinating Committee, Steering Committee, Academic Subcommittees, and broader campus-wide input. The guiding principles are as follows: Learning and Discovery, Access and Campus Life, Research Growth and Partnerships, Location and Connectivity, and Stewardship.

**ACADEMIC ORGANIZATION**

UWM has developed a strategy for distributing key programs and facilities throughout the region to realize its strategic missions of partnership, access, community engagement, and economic development. The strategy includes the following:

- **Kenwood**—Kenwood will remain as the center of academic and student life activity. To that end, uses that focus on teaching, learning, and research are given priority at Kenwood.

- **The Brewery**—The regeneration potential, downtown location, and adjacent academic institutions make the Brewery an attractive expansion site. Given the context and proximity to downtown, the Brewery is identified as a possible location for the public, community, and clinical health programs.

- **The Harbor**—The Harbor site offers an essential component for the School of Freshwater Science: immediately adjacent dock and access to Lake Michigan. The site also offers the space for partnerships as well as the opportunity for the University to act as a catalyst for redevelopment of the Fifth Ward.

- **Innovation Park at Wauwatosa**—Innovation Park is attractive for research clusters that would benefit from partnership opportunities and association with the Medical College of Wisconsin, the Blood Center, area hospitals, the Children’s Research Institute, and others currently located at the County Grounds in Wauwatosa.

- **Columbia Saint Mary’s (CSM)**—CSM is identified as a potential site for academics, as well as future housing and student life facilities. The site could also accommodate the relocated childcare facility, recreation, open space, potential parking, and back office functions.
THE KENWOOD DESIGN VISION

The University of Wisconsin-Milwaukee campus Master Plan vision requires the successful coordination of a variety of Master Plan frameworks including land and building use, as well as open space and landscape. Collectively, these frameworks provide the foundation for a unified and comprehensive Master Plan across all locations that reinforces the values and goals of the University and broader campus community and creates varied and rich learning and discovery environments.

Land and Building Use

The Kenwood campus is comprised of three distinct precincts: the southwest precinct, the southeast precinct, and the north precinct. These precincts are distinct both architecturally and programmatically, and each is characterized by a series of buildings that strongly relate to open spaces. At the same time, each precinct is linked to one another via an interconnected pedestrian network.

Open Space and Landscape

The proposed open space and landscape system is designed to function as a “working landscape” that embraces, integrates and embodies design, environmental, and academic values. The working landscape responds to the climate and natural conditions of the site, working with its features to maximize functional qualities. Through sustainable design and dedication to environmental responsibility emerge a rigor to placemaking and a commitment to creating vibrant campus environments.
DESIGN GUIDELINES

Urban Design Guidelines
The purpose of the urban design guidelines is to set forth the basic design principles that provide a structure for campus development. These approaches to open space, the public realm, building orientation, proportionality, and massing ensure that the University has a unified identity and scale.

Building Guidelines
The building guidelines are intended to assist architects, planners, and campus designers in the design of future facilities and renovations. The recommendations align with the University’s sustainability objectives and desire for high performance buildings.

Landscape Guidelines
Campus landscape design guidelines provide fundamental organizing ideas and concepts for the campus landscape. While the guidelines offer sufficient detail for the design of the campus open spaces, they establish a design direction rather than prescribing definitive design solutions. The guidance promotes working landscapes and seeks to achieve a comprehensive campus landscape design that is sustainable and environmentally responsible, economical and practical to maintain, respond to climate and natural conditions of the site, and establishes an experientially rich and integrated environment.

OPPORTUNITY SITES
UWM’s academic and research mission is driving the need for new types of academic, research, campus life and support facilities. At the same time, there are significant space deficits for existing activities. The Master Plan provides recommendations for transforming the Kenwood campus and east side landholdings to address these needs. However, as has been demonstrated in the Master Plan, there are limitations on what can be accommodated on the landlocked Kenwood campus and at UWM’s current East Side locations, especially for facilities that require large areas of land for practical needs such as athletic fields and parking.
The Harbor
The vision for the Harbor Campus is to house the new School of Freshwater Science in a state-of-the-art facility, which could act as an anchor for a new science district that is created in partnership with the City, adjacent landowners, and the business community. Located along the Kinnickinnic River, the district could serve as a catalyst for urban regeneration in the Fifth Ward with water, energy and advanced manufacturing being the focus. There is also potential for connection to amenities and housing within the Third Ward, reinforcing the success of this adjacent historic district.

The Brewery
The vision for the Brewery is to create a health presence for University-wide programs within a potentially vibrant, urban district in downtown Milwaukee. The location will be comprised of public, community, and clinical health programs. Combined, these programs will serve UWM’s access and outreach mission by distributing University programs in the city. By collocating programs, UWM can establish a critical mass of activity and identity in the downtown area. Clinical programs from Education, Psychology, and Social Welfare could also be located at the Brewery with the undergraduate portions of each remaining at Kenwood. The Brewery site also provides the opportunity to establish a higher education collaborative by strengthening partnerships with MATC, MSOE, and other area colleges and universities.

Innovation Park
The vision for the Innovation Park is to create a cluster research district that encourages partnership and collaboration with the goal of advancing the significant research goals of the University. By locating close to viable partners, UWM can establish itself as a relevant and active leader in the research growth of the Milwaukee region and state of Wisconsin. The Innovation Park will provide academic and research opportunities primarily for engineering, with the bulk of undergraduate work continuing at the Kenwood campus. Development of the Innovation Park will be directed by the UWM Foundation and will include partners, such as the Medical College of Wisconsin (MCW), the Children’s Research Center, GE Medical, the Milwaukee County Research Park, and the Blood Center.

Columbia St. Mary’s
The preliminary vision for the CSM site is to provide additional academic space to support the Kenwood campus. In addition, CSM may also offer opportunities for increased student life, housing, and parking facilities to meet critical shortfalls.

Lincoln Park
The UWM Athletics Department envisions an Athletic Village at Lincoln Park to accommodate much needed expansion, particularly for baseball, tennis, soccer, track, and a practice facility. By clustering athletics venues, the Athletics Department can realize efficiencies through shared usage. Future utilization of Lincoln Park should be the subject of a detailed programming and master plan study for Athletics and recreation.
TRANSPORTATION
Given UWM’s anticipated presence at multiple locations in the Milwaukee region, connectivity is essential in terms of providing safe, efficient, and navigable passage between sites. As such, the Master Plan accommodates connectivity at a variety of scales: within the Kenwood campus, between the Kenwood campus and other East Side facilities, and between the East Side and other potential UWM locations downtown and to the west.

The transportation framework describes an integrated circulation system for UWM that includes entrances, pedestrian, transit, bicycle, vehicular, and parking networks. Fundamental to all of these networks is the desire to reduce vehicle miles traveled to the campus, an emphasis on efficiency and accessibility, and a commitment to create a pedestrian and bicycle/transit-oriented campus. The transportation recommendations champion a comprehensive Transportation Demand Management (TDM) approach that prioritizes walking, cycling, and transit.

SUSTAINABILITY
The Master Plan focuses on those goals that relate to the physical development of the campus, although goals related to campus life, community engagement, and sustainability in academics are also discussed. Specific objectives and targets for resource consumption are provided for water resources, energy, emissions, transportation and natural resources / landscapes. Goals for each of these areas are summarized below:

Water Resources
• Reduce campus water usage by 20% through operations and human behavior changes from a 2005 baseline by 2012. Continue to conserve and reduce consumption incrementally each year.
• Engineer and landscape for zero-stormwater discharge from the Kenwood campus by 2020 at the roof top and ground level.
EXECUTIVE SUMMARY

Energy
- Reduce energy consumption per square foot by 20% of the fiscal year 2005 State energy report baseline (adjusted for weather) through operations and human behavior changes. Continue to reduce consumption over time in accordance with any subsequent Executive Order issued by the Governor of Wisconsin.
- Secure renewable energy sources to supply 20% of campus use by 2020, and adjust to any other goal set forth by the Governor and State of Wisconsin, through the use of, but not limited to, solar, wind and geothermal energy.
- Reduce consumption of fossil fuel by the University fleet vehicles, through operations scheduling and by vehicle types utilizing the latest fuel efficiency standards / technology and economic feasibility for the campus.

Built Environment
- Design for the efficient use of energy in all new and existing facilities and in accordance with the Division of State Facilities Sustainable Facilities Guidelines. Apply for LEED Certification, stressing energy efficiency, whenever economically feasible.
- Utilize current space and land efficiently to optimize the use of UWM facilities and energy.

Transportation
- Double alternative transportation journeys to the campus through incentives, community partnerships and resource adjustments by 2020, relative to a 2008 baseline.
- Develop campus, community and multi-county strategy and programs to encourage the use of alternative transit, including, but not limited to pedestrian, bike, bus, train and carpooling that is relevant to all UWM sites.

Natural Resources / Landscapes
- Sustain and increase the use of native and perennial landscaping with the aim of reducing maintenance costs over time and fostering an awareness of Wisconsin ecology.
- Eliminate the use of all pesticides and synthetic fertilizers, while increasing the health of campus soil /lawns by aeration, natural compost and seeding by 2012.
- Enhance preservation strategies for Downer Woods focusing on the management of invasive species and encouraging the campus community to use the Woods for passive and active education about the environment.

IMPLEMENTATION

The Master Plan provides a framework for implementing a number of new facilities, renovation projects and site improvements over the next ten-to-twenty years and beyond. The implementation recommendations focus more specifically on the near-term priority projects.

As an outcome of a consultation process conducted in conjunction with the University, considerations for potential near-term projects include:
- Project Bundling / Scope – including the infrastructure, landscape and other improvements associated with the proposed building or facility.
- Funding – the sources available for the project
- Consultation and Approvals Process – the government regulations and approval processes that must be addressed to implement the project
- Miscellaneous considerations – other factors that need to be considered to implement the project.

Among the several emerging projects, the Master Plan prioritizes the following near-term projects: Freshwater Science Facility and Research Vessel, Kenwood Phase 1 Interdisciplinary Research Center (IRC), Innovation Park IRC, and Health Downtown.
INTRODUCTION
INTRODUCTION

The University of Wisconsin-Milwaukee (UWM) is continually evolving to fulfill its access and research missions on behalf of the people of Wisconsin. At this time, there are a variety of opportunities open to the University. Simultaneously, there is a state-wide need to foster regional economic growth in the Milwaukee area. In response to these challenges and in response to the evolving mission, the University commissioned a master plan to develop options for land use; space use; image and identity; access, vehicular and pedestrian circulation; parking and transit services; building opportunities; open space, recreation and athletics; and utilities and infrastructure for existing and potential new UWM locations.
PLANNING CONTEXT
UWM began as Normal School in 1885 in a location just west of downtown, but in 1909 moved to the present location at Downer Ave and Kenwood Blvd. During this time, the University of Wisconsin offered classes in Milwaukee, a role that the Extension Division took over in 1920. The Normal Schools evolved into four-year state colleges between 1927 and 1951, and in 1956, UWM became the second institution in the University of Wisconsin system.

The first official planning effort for the Kenwood campus took place in 1960, marking the beginning of a period of expansion as the University bought first the Milwaukee-Downer Seminary site, then the Milwaukee-Downer College buildings, and finally the Milwaukee University School campus. At the time, the University had an enrollment of approximately 7,000 students, with a projected enrollment of 20,000 by 1975. By 1970, however, the campus had already reached an enrollment of nearly 21,000 students.

In 1970, the firm of Caudill-Rowlett-Scott was contracted by the State Bureau of Facilities Management to develop a master plan for the Kenwood campus, which was completed in 1972.

The 1972 Campus Master Plan has not been updated, nor has another campus Master Plan been completed since that time. This Master Plan therefore marks the first in over 30 years, and will provide the framework for future academic, physical, and capital planning processes.

(source: Campus Physical Development Plan, University of Wisconsin-Milwaukee, July 2006)

THE PLANNING PROCESS—GUIDANCE AND CONSULTATION
Master Planning for UWM commenced in April 2008 under the guidance of the Executive Leadership Team, the Campus Planning Steering Committee, the Campus Planning Coordinating Committee, the Academic Subcommittees, and the Planning Support Team. These University teams worked in cooperation with the consulting collaborative of Hammel, Green, and Abrahamson, Inc. (HGA) (Milwaukee, Wisconsin) and Sasaki Associates, Inc. (Watertown, Massachusetts) to develop the comprehensive 2010 Master Plan. For a listing of all members of the planning team, please see the Acknowledgements.

The Master Planning process was highly inclusive and transparent, designed to provide deliberate and interactive engagement with the University of Wisconsin-Milwaukee campus community, the broader Milwaukee community and partners, and other local and State representatives. The process included on-campus work sessions of one to three days in duration, scheduled every 4 to 6 weeks throughout the 20-month process. In total, there were over 200 meetings with campus and community constituents. Follow-up meetings and web-based conferences were held, particularly during months when work sessions were not scheduled. In addition, numerous presentations and forums took place with Alumni, community stakeholders, neighborhood organizations, research partners in the private sector, student groups, and many others.

The planning process was governed by a set of process-related principles set out at the beginning of the planning effort by the Master Planning Committees and Subcommittees. They are as follows:

Open
The Master Planning process is inclusive, welcoming to new ideas, and characterized by its integrity, transparency, and openness. Shared governance is embraced throughout the process.

Responsive
The Master Planning process is iterative in nature and responsive to key stakeholders, including students, faculty, and staff, neighbors, the City of Milwaukee and surround-
ing communities, business partners, and the UW System. Space and facility planning should be coordinated with other ongoing planning processes and respond to needs and priorities identified through a discovery process involving key stakeholders.

**Rigorous**

The Master Planning process is data driven, rigorous, and defensible. Emerging from an analysis of UWM’s academic direction and programmatic needs, the process will sift through the many ideas that emerge from open discussion to focus on a set of ideas or scenarios for planning that can be implemented and that demonstrates the efficient use of public funds.

**Bold**

The Master Planning process is broad enough in scope to enable UWM to fully realize its mission as an urban research university serving the State’s largest and most diverse City. The process will yield new, ambitious, and transformative ideas that lead to positive outcomes for the University, the City, the region, and the State.

**MASTER PLAN PHASES**

The development of the Master Plan included four phases of work:

**Phase A: Observations and Assessments**

Phase A included a broad investigation to record existing site conditions of the UWM campuses including architectural and landscape character, circulation patterns, existing natural systems, space use, and utilities infrastructure. Phase A also included interviews with members of the UWM faculty, staff, and broader campus community, local government officials, neighborhood and business groups and others to confirm the academic, research drivers, and programmatic needs. The principles, goals, and objectives for the study are the outcome of these meetings.

**Phase B: Principles and Conceptual Plan**

The Principles and Conceptual Plan phases examined the most favorable options for near-term and long-term UWM development at the sites identified by the University prior to the planning process, as well as across a range of other potential sites that emerged during the planning process. The objective for this phase was to refine the development patterns and site/area/precinct characteristics to create the framework for more detailed studies and plans. Along with physical planning, Phase B considered the academic program needs and priorities to determine appropriate fit across the range of identified sites.

**Phase C: Site/ Area and Precinct Studies**

Phase C focused on specific planning for the various sites, areas, and precincts for the UWM campuses. Elements of this phase included unifying site features, site details and planning concepts, and plan development. This phase also considered the space needs for various academic programs to match site capacity with space needs.

**Phase D: Final Integration Plan**

Phase D integrated all assessment and planning completed in previous phases and assembled the information and findings in a comprehensive Master Plan document that outlines an implementation plan to address phasing and project scopes. This phase included the development of a financial model for use by the Vice Chancellor for Finance and Administrative Affairs as an ongoing implementation and decision-making tool.
MASTER PLAN TOOLKIT

The Master Plan will serve as a toolkit to aid the University in ongoing implementation decisions. Each phase of the process resulted in a component of this toolkit, summarized as follows and included in more detail throughout this document. In addition, the Master Plan includes supporting analytical and technical information documented separately in the Phase A report and the Technical Appendix of this document.

Phase A Products

Building and Infrastructure Assessments

The Building and Infrastructure Assessments involved gathering existing data from the University, field surveys, and interviews. These assessments summarize the general condition of UWM facilities and infrastructure and provide a foundation for decision-making and future investment.

Space Needs and Utilization Assessment

The Space Needs and Utilization Assessment documents existing space and space use at the University and indicates space deficiencies in a variety of areas, both academic and non-academic. The assessment determines the quantity of space that will be needed based on both current and projected enrollments and faculty/staff projections.

Parking and Transportation Assessment

The Parking and Transportation Assessment considers the entire transportation network, including vehicular circulation, the pedestrian network, bicycle routes, public transit, University shuttles, and parking. The study analyzes the existing inventory and recommends future improvements that would enhance services.

Phase B Products

Academic Program Distribution Strategy

The Academic Program Distribution Strategy considers the range of Opportunity Sites identified prior to the Master Plan, as well as those identified during the planning process. It establishes a strategy for accommodating the range of program needs determined in Phase A. Program distribution is accommodated at the Kenwood campus, as well as at a range of Opportunity Sites, including the Harbor, the Brewery, Innovation Park, Columbia St. Mary’s, and Lincoln Park.

Site Studies

The Phase B Site Studies establish an organizing framework at Kenwood and at each of the Opportunity Sites for accommodating the identified program needs. This framework includes considerations for access, circulation, and landscape.

Research Objectives and Distribution Strategy

Prior to the commencement of the Master Plan, UWM identified four key areas of research focus: health sciences, freshwater, biomedical sciences, and advanced manufacturing. As part of Phase B, the Master Plan team matched these priorities with the range of partnership opportunities that could propel research forward. These partnerships, in part, influence the overall distribution strategy for research.

Decision Tree

The Decision Tree was a process-tool developed as part of Phase B to aid campus leadership in understanding the impact that certain locational decisions would have on future campus development.

Phase C Products

Design Guidelines

The design guidelines set forth the basic design principles that will provide a structure for campus development. The approaches to open space, the public realm, building orientation, proportions, and massing ensure that future development will have a unified identity and scale.

Detailed Site Studies

The detailed site studies coordinate the urban design primarily of the Kenwood campus with the known program priorities. The site studies consider the organization of program elements within the physical framework and also the open spaces and interior and exterior corridors that connect them.

Phase D Products

Implementation Plan

The implementation plan identifies the priority projects that will be initially developed, as well as the scope, funding source required, approvals, and other considerations. For more detailed information, please see the Implementation Appendix.

Final Master Plan Document

The Master Plan document is the summary resource that combines all of the tools that were created during the planning process. This document not only includes the recommendations for physical and programmatic development, but also the stewardship structures that will govern decision-making over the long term.
INTRODUCTION

Building & Infrastructure Assessments
Space Needs & Utilization Assessment
Parking Study

Academic Program Distribution
Site Studies
Decision Tree
Research Objectives

Design Guidelines
Detailed Site Studies
Implementation Plan
Final Master Plan

Phase A
Phase B
Phase C
Phase D
INTRODUCTION

FRAMEWORK FOR PLANNING

The Master Plan is founded, in part, on various institutional priorities and planning initiatives. These include the University and System mission Statements, the 2007-08 Academic Plan and other technical studies.

UWM’s Mission (System, Doctoral, Select)

University of Wisconsin System Mission

The mission of this system is to develop human resources, to discover and disseminate knowledge, to extend knowledge and its application beyond the boundaries of its campuses, and to serve and stimulate society by developing in students heightened intellectual, cultural, and humane sensitivities; scientific, professional, and technological expertise; and a sense of purpose. Inherent in this mission are methods of instruction, research, extended education, and public service designed to educate people and improve the human condition. Basic to every purpose of the system is the search for truth.

UW System Doctoral Cluster Mission Statement

As institutions in the Doctoral Cluster, the University of Wisconsin–Madison and the University of Wisconsin–Milwaukee share the following core mission. Within the approved differentiation stated in their select missions, each university shall:

- Offer degree programs at the baccalaureate, master’s and doctoral levels.
- Offer programs leading to professional degrees at the baccalaureate and post-baccalaureate levels.
- Conduct organized programs of research.
- Promote the integration of the extension function, assist the University of Wisconsin-Extension in meeting its responsibility for Statewide coordination, and encourage faculty and staff participation in outreach activity.
- Encourage others in the University of Wisconsin System and in other State and national agencies to seek the benefit of the unique educational and research resources of the doctoral institutions.
- Serve the needs of women, minority, disadvantaged, disabled and nontraditional students and seek racial and ethnic diversification of the student body and the professional faculty and staff.
- Support activities designed to promote the economic development of the State.

University of Wisconsin Milwaukee Select Mission Statement

To fulfill its mission as a major urban doctoral university and to meet the diverse needs of Wisconsin’s largest metropolitan area, the University of Wisconsin-Milwaukee must provide a wide array of degree programs, a balanced program of applied and basic research, and a faculty who are active in public service. Fulfilling this mission requires the pursuit of these mutually reinforcing academic goals:

- To develop and maintain high quality undergraduate, graduate and continuing education programs appropriate to a major urban doctoral university.
- To engage in a sustained research effort which will enhance and fulfill the University’s role as a doctoral institution of academic and professional excellence.
- To continue development of a balanced array of high quality doctoral programs in basic disciplines and professional areas.
- To attract highly qualified students who demonstrate the potential for intellectual development, innovation, and leadership for their communities.
- To further academic and professional opportunities at all levels for women, minority, part-time, and financially or educationally disadvantaged students.
- To establish and maintain productive relationships with appropriate public and private organizations at the local, regional, State, national, and international levels.
- To promote public service and research efforts directed toward meeting the social, economic and cultural needs of the State of Wisconsin and its metropolitan areas.
- To encourage others from institutions in the University of Wisconsin System and from other educational institutions and agencies to seek benefit from the University’s research and educational resources such as libraries, special collections, archives, museums, research facilities, and academic programs.
- To provide educational leadership in meeting future social, cultural, and technological challenges.


The UWM 2007-08 Academic Plan

The UW-Milwaukee Academic Plan summarizes the institution’s academic planning as it relates to the institutional mission and informs the master planning process; provides an overview of projected new and proposed academic programs; and outlines resources for program development. Two strategic goals have framed the academic planning process: Research Growth and Academic Success. To meet these goals, the Plan targets growth in the following areas: Natural Sciences, Engineering, and Health. The Plan also considers the creation of two new schools: the School of Public Health and the School of Freshwater Science. Based on the academic plan, the following FTE student enrollment, faculty, and staff projection targets were established:

The following are outcomes of the Academic Plan:

- Minimal increase in undergraduate enrollment
- Increase in graduate enrollment to reflect increased graduate research
- Increase in faculty and staff to support intended growth in research

In addition, a number of technical studies, data, and other information were referenced in the development of the Plan, including “UWM as a Zero-Discharge Zone: A stormwater masterplan for the UWM Campus” and the 2009 Draft Environmental Sustainability Plan, among others.

1 UWM Presentation of Academic Plan, June 6, 2008
GUIDING PRINCIPLES
GUIDING PRINCIPLES

The Guiding Principles for the Master Plan represent the translation of UWM’s values and aspirations into planning criteria. They serve as the drivers for the development of the Master Plan and apply to the Kenwood campus, East Side landholdings and the Opportunity Sites that the University may develop. The Guiding Principles are the outcome of input received from the Master Plan Coordinating Committee, Steering Committee, and Academic Subcommittees. The Principles, summarized in the following pages, fall into five broad categories as follows:

Learning and Discovery
Access and Campus Life
Research Growth and Partnerships
Location and Connectivity
Stewardship
LEARNING AND DISCOVERY

Principle Statement
We envision transformative spaces that promote faculty, staff, and student academic excellence through the highest level of learning and discovery, vigorous institutional development, and positive societal, economic, environmental, and cultural change.

Incorporation in the Master Plan
The Master Plan addresses this principle in the following ways:
- Creates a system of internal circulation corridors with learning and social spaces
- Establishes academic neighborhoods throughout the Kenwood campus
- Provides new outdoor spaces for gathering
- Identifies opportunities for major new academic and research buildings

The proposed University environment supports and embodies learning and discovery. New academic facilities and enhanced open spaces will employ sustainable design strategies to establish laboratories for innovation at all UWM sites. In this way, the educational environment is reflective of the institutional mission.

Academic neighborhoods provide an organizing framework for University departments. These are not meant to be rigid delineations for academic programs; but rather, they are meant to provide a sense of identity and camaraderie. Outdoor spaces and interior / exterior connective corridors are viewed as an extension of the learning and discovery environment and serve as the seams between these neighborhoods.

The Master Plan calls for enhanced classrooms that support pedagogical innovation. Likewise, the Plan considers the informal and collaborative spaces that will facilitate the exchange of ideas. These spaces include additional study and campus life space distributed across all UWM sites.

ACCESS AND CAMPUS LIFE

Principle Statement
We are committed to providing a rich campus physical environment for our diverse learning community that offers greater opportunity for social interaction, maximizes student success, and offers the benefits of the surrounding dynamic urban area.

Incorporation in the Master Plan
The Master Plan addresses this principle in the following ways:
- Provides educational access opportunities throughout the region by establishing multiple locations
- Improves the urban environment and contributes to campus life by potentially distributing UWM activities at the Opportunity Sites
- Links UWM locations via enhanced transit services
- Establishes a continuous learning environment through a comprehensive indoor-outdoor circulation network at Kenwood
- Facilitates accessibility for all population groups

To extend access and expand its relevancy to the people of Wisconsin, a strategy is emerging for distributing key programs and facilities throughout the City. This strategy not only advances the academic and research missions of UWM but also acknowledges the critical role that campus life facilities play in supporting learning and discovery. These important campus life facilities include social learning and collaboration space, student organization space, dining, and athletics and recreation. All of these environments help contribute to the development of the “whole student” and are currently underprovided at UWM.

The Master Plan addresses campus life needs through strategic building additions on the Kenwood campus and by including social and collaborative spaces in proposed buildings at Kenwood as well as the Opportunity Sites. In this way, campus life amenities are both centralized in spaces such as the Student Union and the Library and are distributed across UWM locations, acknowledging the role they play in supporting the academic experience.

The increase of campus life space not only improves the quality of experience for UWM students, faculty, and staff, but also serves as a platform for welcoming visitors. In this way, community access is encouraged and supported in the Master Plan.

New academic facilities and enhanced open spaces will employ sustainable design principles to establish all UWM sites as living laboratories for innovation. In this way, the educational environment is reflective of the institutional mission.
**RESEARCH GROWTH AND PARTNERSHIP**

**Principle Statement**

We envision a campus physical environment that is connected to the community in which it resides, and sparks innovative disciplinary and interdisciplinary research and scholarship leading to new knowledge, economic, and technological development, and a workforce educated for the 21st century economy.

The Master Plan addresses this principle in the following ways:

- Distributes research activities throughout the City in collaboration with partners.
- Identifies opportunities to provide research and innovation support.
- Supports interdisciplinary research environments.

**Incorporation in the Master Plan**

In response to UWM’s mission statement and the State’s goal to foster economic growth, an academic and research vision has been developed by the University. Components of this vision include providing adequate space to accommodate current needs and planned growth, as well as establishing partnerships with other institutions and businesses whose missions complement and reinforce those of UWM.

Individuals from every school and college within UWM are engaged in research at different levels resulting in the need for a variety of facilities and other accommodations. The vision for research at UWM focuses on continuing to build upon the research that already occurs, and promoting growth in four key areas identified by the University: health sciences, freshwater, biomedical science, and advanced manufacturing. These research focus areas require effective partnerships to enhance and advance the activities of the University. Due to the collaborative nature of the proposed research between the University and partners, the activity is likely to take place on sites in addition the Kenwood campus.

**Health Sciences**

Health sciences research is closely tied to existing UWM programs in the Colleges of Nursing, Health Sciences, and Letters and Science, as well as the recently approved new School of Public Health. Potential external partnerships and ongoing collaboration exist with Aurora HealthCare, the Blood Center of Wisconsin, the City of Milwaukee Health Department, and other Milwaukee-area institutions. UWM’s focus in health sciences is based on existing strengths in the health sciences, policy, urban population studies, and other applied research.

**Freshwater**

Five of the top ten national companies focused on the manufacture and development of water-related products are based in Milwaukee, as are 120 water-related companies in the southeast Wisconsin area. The presence of these business partners and Milwaukee’s location on Lake Michigan provides several strategic and location advantages for water-related research at UWM, including the Great Lakes Research Facility (GLRF). GLRF is the only major aquatic research institute on Lake Michigan. The mission is to serve city, state, national, and international interests related to the education, research, and outreach on aquatic issues. The transition of this entity from a research institute to the new School of Freshwater Science will formalize and expand GLRF’s mission and contribution to the region.

The region has experienced growing momentum for the development of freshwater technology and policy. Organizations such as the Water Council are working in partnership with UWM to leverage existing strengths and establish Milwaukee as the freshwater hub.

Through partnerships with Veolia, Pentair, the Milwaukee 7, Badger Meter, the Milwaukee Metropolitan Sewerage District, and others, research endeavors may include the detection and removal of pharmaceuticals in the water supply, stormwater pollution mitigation strategies, nutrient research, and climate change.

**Biomedical Science**

Biomedical Science is a potential area of research for UWM given the regional partnership opportunities, including GE Healthcare and others in collaboration with the Biomedical Technology Alliance. The Medical College of Wisconsin (MCW), the Children’s Research Institute, and the Blood Center are also already engaged in aspects of this research. Strategic hires have been made toward realizing this vision.

Two of the largest potential partners, GE Healthcare and the Medical College of Wisconsin, are located approximately ten miles west of downtown Milwaukee and the Kenwood campus.

**Advanced Manufacturing**

Milwaukee has a rich tradition of manufacturing, however, the percentage of manufacturing jobs in the City decreased from 22% to 15% between 1990 and 2006. Partnerships between the University and entities like Rockwell Automation and Johnson Controls could lead to jobs that contribute to a new era of manufacturing.

Within the broad scope of these four major thrusts, several interdisciplinary research clusters have been identified that address specific capabilities and applications. The Master Plan aims to provide flexible space with appropriate facilities to allow for collaboration and shared research opportunities within these clusters.
LOCATION AND CONNECTIVITY

Principle Statement

We value physical and virtual connectivity within and across campus locations, and with our local, regional and global partners.

The Master Plan addresses this principle in the following ways:

- Encourages a multimodal transportation network to improve access
- Provides connectivity and improves access at all UWM locations via a fortified transit system
- Enhances the transit experience through creation of transit portals, and provides a common identity for UWM across all locations

Incorporation in Master Plan

Given UWM’s anticipated presence at multiple locations in greater Milwaukee, connectivity is essential in terms of providing safe, efficient, and navigable passage between sites. As such, the Master Plan accommodates connectivity at a variety of scales: within the Kenwood campus, between the Kenwood campus and other East Side facilities, and between the East Side and other potential UWM locations downtown and to the west. These connections are facilitated by an integrated network that includes pedestrian, transit, University shuttle, bicycle, vehicular, and parking systems. By providing transportation alternatives, UWM can work toward decreasing the overall total number of vehicle miles traveled, thereby reducing the demand for expensive parking and limiting carbon emissions.

The Master Plan recommends that the existing shuttle serving Riverview and Kenilworth be maintained. Until such time that Milwaukee County Transit Service (MCTS) is able to sufficiently extend its public transit service, UWM may need to expand beyond the residential shuttle to provide enhanced levels of service to each of the opportunity sites in order to reduce automobile demand. Over the long term, cooperation between the University and MCTS can result in new and/or improved transit routes to more directly serve UWM facilities, since efficiency is tied to ridership. In addition to transit services, the commuter experience will be enhanced by amenities and services. Transit Portals are proposed at each UWM location in association with building lobbies to ensure that conditioned waiting areas, social space, rest room facilities and, where feasible, convenience retail and food services, can be provided to commuters. The University will need to play a lead role in advocating where and how transit should interface with these transit portals.

Beyond transit, the University should continue to work with the City to enhance the bicycle network and promote cycling as a viable transportation alternative. The University currently offers bike parking, bike lockers, and shower facilities for University Housing residents. This program could be expanded for the broader commuting population of students, faculty, and staff.
STEWARDSHIP

Principle Statement

We envision a campus environment that is supportive, safe and secure; invests in the holistic well-being of students, faculty, and staff; and delivers a high-quality campus life and student experience, all based upon a primary emphasis on environmental, fiscal and social sustainability. Create safe and secure campus(es) that foster civility.

The Master Plan addresses this principle in the following ways:

- Encourages investment in student life amenities
- Serves community engagement, economic development, and urban regeneration through the distribution of UWM facilities
- Improves the overall quality of the campus environment
- Embraces the goals of the University’s Environmental Sustainability Plan and provides design recommendations for energy, water, transportation, and landscape incorporation in the Master Plan

Social Sustainability

A key component of the UWM mission is to promote social sustainability by expanding educational access, promoting living/learning environments, and enriching the neighborhoods in which UWM has a presence. In doing so, UWM recognizes its broader role in contributing to the health and vitality of the greater Milwaukee region and, by extension, the State of Wisconsin.

UWM supports social sustainability by providing increased educational access to underserved populations. By establishing facilities throughout greater Milwaukee, UWM is able to provide program opportunities for multiple constituents at multiple locations. Potential future facilities at the Harbor, the Brewery, and Innovation Park extend UWM’s presence from the East Side to central, southern, and western Milwaukee, thereby reaching both urban and suburban populations.

Efforts to enhance the living/learning environment also contribute to the goal of social sustainability. All aspects of campus life are important for the academic and research missions of UWM. In particular, campus housing is viewed to be critical for the undergraduate population. At the same time, the University is expanding housing options for students, it must also help to strengthen surrounding neighborhoods. The University should also extend initiatives to increase the number of faculty and staff that live in the surrounding Kenwood neighborhood, building upon the existing “Walk to Work” program.

Specific measures will be required for UWM to effectively operate within the City to promote social sustainability. These measures include cooperating with local government, establishing partners to realize mutually beneficial goals, and acting as an advocate for regional transit.

Economic Sustainability

UWM’s goal is to strengthen the Milwaukee and Wisconsin economies by fostering partnerships, developing intellectual capital, and promoting urban regeneration. In this way, UWM can extend the breadth and depth of its influence while forming relationships to realize mutually beneficial goals.

In terms of research growth, the University’s vision includes providing adequate space to accommodate planned growth and establishing partnerships with other institutions whose missions complement and reinforce those of UWM. The vision reinforces UWM’s goal to advance biomedical sciences, advanced manufacturing, energy and sustainability, freshwater, and health sciences focusing on UWM’s research growth in these areas. The aim is for the research activity to ignite product development and job growth, serving both the University and the broader regional economy.

UWM has the opportunity to contribute to the economic sustainability of Milwaukee by investing in underutilized districts, such as the former Pabst Brewery. By supporting regeneration, UWM serves as a catalyst for redevelopment. The same is true for future development at the Harbor and its adjacent Fifth Ward and Third Ward districts. The potential for spin-off businesses, such as retail and hospitality, is likely and can lead to more vibrant mixed-use districts in these areas of the City.

Environmental Sustainability

Environmental sustainability is reflected in the Master Plan recommendations with respect to both physical and natural site features (as is discussed in the Sustainability Chapter of this report), but also broader sustainability goals such as transportation options and connectivity.

The overarching goal of UWM’s Draft Environmental Sustainability Plan (July 2009) is to embrace sustainability as a core institutional value in all UWM planning, operations, and academic programs with the aim of positioning UWM as a critical stakeholder and example in education and workforce development in the Milwaukee region. The main objectives are to:

- Increase student, staff and faculty awareness and education regarding the environment, sustainability, and human impact on our natural resources and community.
- Develop and strengthen resources for expanding a sustainable UWM Campus and Community (short and long term)
- Establish new and expand existing community partnerships, including area schools, non-profits, and businesses
- Utilize the interdisciplinary nature of sustainability to reach out to all academic areas
- Bridge internal and external inherent gaps to foster new communication and problem solving techniques.
- Establish relevance to City and regional priorities (M7) in workforce and economic development.

Source: UM-Milwaukee Environmental Sustainability Plan, July 2009 Draft
ACADEMIC AND CAMPUS LIFE PROGRAM
ACADEMIC AND CAMPUS LIFE PROGRAM

The Academic and Campus Life program provides a summary of the space needs analysis, as well as an overview of the academic organization for both the Kenwood campus and the various Opportunity Sites. The 2007-2008 Academic Plan serves as the foundation for the future program by providing target student enrollments and faculty projections by School and College. From these projected populations, future space needs are identified. Space needs are provided at both the Higher Education General Information Survey (HEGIS) level (use categories) and at the School/College level. Detailed space programming information, including assumptions and methodologies, is included in the Technical Appendix to this report.

1 Room inventory coding structure used universally by Colleges and Universities to classify and analyze space, allowing for consistency in data for purposes of analysis and comparison.
GOALS OF THE ACADEMIC AND CAMPUS LIFE SPACE STUDY

- Accommodate current and future space needs based on enrollment projections.
- Improve adjacencies within and between academic units.
- Extend the learning environment by increasing the amount of informal and collaborative space.
- Provide adequate recreation and athletic space to support the living/learning mission of the University.

KEY RECOMMENDATIONS

- Create a series of academic neighborhoods on the Kenwood campus to both improve adjacency within disciplines and collaboration across disciplines.
- Respect the adaptive reuse qualities and the character of the existing buildings, especially the historic buildings and the large footprint high rise buildings.
- Include an allowance within each school and college for study space and student life space (10% total), which is expected to occupy and enliven the ground floors in particular.
- Combine one-stop student service programs with other student and academic services to form a larger “Main Street” concept, with high access programs on the ground floor and back office functions on the upper floors.
- Provide housing for all first-year students.
- Co-locate recreation with future housing sites.
- Develop incentives and programs to support faculty and staff “Walk to Work” programs.
THE ACADEMIC PLAN AND PROGRAM

Enrollment

The academic planning process was a parallel effort to the Master Plan and was carried out by UWM in 2008. Aided by the academic subcommittees, the Office of the Provost examined the range of programs across the University. The resultant Academic Plan considered future faculty lines to support the University’s academic goals, and the additional staff needs to support program growth. While several Schools and Colleges will experience some increased faculty and staff lines, the Plan targets growth in the following areas: Natural Sciences, Engineering, and Health. These programs have been targeted due to their potential to advance the dual missions of research and access. Based on the Academic Plan, FTE student enrollment, faculty, and staff projection targets were established (shown in Table 1 below).

The following are outcomes of the Academic Plan:

- Minimal increase in undergraduate enrollment
- Increase in graduate enrollment to reflect increased graduate research
- Increase in faculty and staff to support intended growth in research

In addition, the University is committing resources to form two new schools, which have been recently approved by the University of Wisconsin Board of Regents: the School of Public Health and the School of Freshwater Science. Both schools are important to the future access mission and research mission of UWM.

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2. UWM Presentation of the Academic Plan, June 2008

<table>
<thead>
<tr>
<th>TABLE 1: STUDENT, FACULTY, AND STAFF PROJECTIONS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDERGRADUATE</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>College of Engineering &amp; Applied Science</td>
</tr>
<tr>
<td>College of Health Sciences</td>
</tr>
<tr>
<td>College of Letters and Science</td>
</tr>
<tr>
<td>College of Nursing</td>
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<tr>
<td>Helen Bader School of Social Welfare</td>
</tr>
<tr>
<td>Lubar School of Business</td>
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<tr>
<td>Peck School of the Arts</td>
</tr>
<tr>
<td>School of Arch. and Urban Planning</td>
</tr>
<tr>
<td>School of Continuing Education</td>
</tr>
<tr>
<td>School of Education</td>
</tr>
<tr>
<td>School of Information Studies (SOIS)</td>
</tr>
<tr>
<td>School of Freshwater Studies</td>
</tr>
<tr>
<td>School of Public Health</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

*Other* includes credit-granting programs such as the Academic Opportunity Center (AOC), OARS, and UWMIL.

Projected Growth: Students, Faculty, & Staff
## Space/Facility Needs

To further the academic and research mission, address current unmet demand for space, accommodate enrollment growth, and provide facilities to house future academic and research programs, a comprehensive space needs assessment was undertaken. In sum, the University has a need for an additional 1,064,000 ASF of non-residential space, which equates to approximately 1,500,000 gsf.

Broadly, future space deficiencies exist in the following areas:

- The most critical space needs are in the areas of laboratory, student life and library, and office:
- The lab deficit relates primarily to the need for additional research space to meet the University’s research growth mission.
- Student life space includes dining and general collaboration and study space. This space can and should be distributed throughout the campus to reach as many students as possible.
- Office space includes faculty and staff offices, as well as support space.

### Table 2. Summary of Future Space Needs

<table>
<thead>
<tr>
<th>Use</th>
<th>Existing Floor Area (ASF)</th>
<th>Current Space Needs (ASF)</th>
<th>Surplus/ (Deficit) (ASF)</th>
<th>Future Space Needs (ASF)</th>
<th>Surplus / (Deficit) (ASF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td>164,000</td>
<td>178,000</td>
<td>(14,000)</td>
<td>195,000</td>
<td>(31,000)</td>
</tr>
<tr>
<td>Laboratory</td>
<td>709,000</td>
<td>951,000</td>
<td>(242,000)</td>
<td>1,103,000</td>
<td>(394,000)</td>
</tr>
<tr>
<td>Office</td>
<td>634,000</td>
<td>666,000</td>
<td>(32,000)</td>
<td>840,000</td>
<td>(206,000)</td>
</tr>
<tr>
<td>Library</td>
<td>203,000</td>
<td>347,000</td>
<td>(144,000)</td>
<td>363,000</td>
<td>(160,000)</td>
</tr>
<tr>
<td>Athletics, etc.*</td>
<td>359,000</td>
<td>358,000</td>
<td>1,000</td>
<td>389,000</td>
<td>(30,000)</td>
</tr>
<tr>
<td>Student life, Assembly, etc.**</td>
<td>299,000</td>
<td>567,000</td>
<td>(268,000)</td>
<td>618,000</td>
<td>(319,000)</td>
</tr>
<tr>
<td>Support</td>
<td>191,000</td>
<td>187,000</td>
<td>4,000</td>
<td>211,000</td>
<td>(20,000)</td>
</tr>
<tr>
<td>Health</td>
<td>5,000</td>
<td>8,000</td>
<td>(3,000)</td>
<td>9,000</td>
<td>(4,000)</td>
</tr>
<tr>
<td>Total (Non-Residential)</td>
<td>2,564,000</td>
<td>3,261,000</td>
<td>(698,000)</td>
<td>3,677,000</td>
<td>(1,164,000)</td>
</tr>
</tbody>
</table>

Source: University data, July 2008

*Deficit assumes continued use of U.S. Cellular Arena; deficit would grow if U.S. Cellular Arena is not considered

**Includes student life space in Sandburg Commons
Summary of Space Needs by Space Type

Classrooms (HEGIS 100)
- There is a mismatch between section sizes and classroom sizes, with a particular need for more seminar rooms (0-20 seat), small classrooms (21-40 seat), and larger classrooms (56-110 seat), see chart at right.
- Furniture is dated and inflexible. Movable furniture would better support current pedagogy.
- There is a lack of consistent technology across classrooms.

Laboratory (HEGIS 200)
- Research has been identified as a key area of growth for the University. A growth in research lab space must follow accordingly.
- There is an overall need for more specialized labs, particularly simulation labs.
- The quality of research lab space is uneven.
- Interdisciplinary research lab space is needed to foster cross-departmental collaboration.
- Laboratories need increased storage and support space.

Office (HEGIS 300)
- Office space is inefficiently organized, splitting departments and separating faculty offices from others within the department as well as from instructional space.
- The quantity of office space allocated seems to be uneven across departments, with some departments able to accommodate future growth, but many that cannot.
- Office sizes across departments vary significantly.

Library/Study (HEGIS 400)
- Interviews with Library staff indicate that current Library stack space is generally adequate, although shelving needs continue to grow.
- Study space is a need not only for the Library, but across campus, particularly informal study areas in academic areas for use before and after classes. Study space should be distributed within future buildings and in existing buildings as they undergo renovations.
- As students increasingly work in groups, the square footage per student is now greater as the social component of learning increases. The recent addition of the Learning Commons has greatly improved social learning and is a good model for the future.

Special Use (HEGIS 500)
- Over the last few years, the University has seen an increase of over 50% in the use of recreation facilities. This trend is expected to continue as the percentage of students living in University housing increases.
- Many athletic facilities are leased from a third party. This makes use of underutilized facilities but often students are dissuaded to attend athletic events due to the distance from the Kenwood campus. Off-campus facilities also create a problem in terms of travel time, which impacts how classes are scheduled.
- The use of the Cellular Arena downtown is included as an existing resource for the University. If the University discontinues its use, it will increase the space need in this category.

General Use (HEGIS 600)
- There is a need for informal student lounges and large and small meeting spaces, such as multipurpose function rooms, particularly for student use.
- Space is needed for the commuter student population
- Additional student organization offices and meeting spaces are needed, as well as adequate storage space to accommodate equipment and supplies for these organizations.
- Additional performance space is needed.

Support Facilities (HEGIS 700)
- Currently, storage needs are met through several satellite facilities throughout the City. More adjacent storage space to the Kenwood campus is desired.
- The mailroom is an adequately-sized facility; however, access is difficult, particularly given multiple daily deliveries.

Health (HEGIS 800)
- Growth in counseling and mental health programs will require additional space.
- There is a need for additional clinic space.
- Existing spaces and resources are too small to achieve staffing and service goals.

Residential (HEGIS 900)
- To reach the goal of 5,000 total beds, the University needs to add an additional 635 beds (in addition to the 750 beds in construction at Cambridge Commons).
Space Needs by College/ School

In addition to the HEGIS-level summaries, a space analysis was also conducted for colleges and schools to determine Master Plan-level space needs. These space needs are based on projected student enrollment as well as faculty and staff population projections, as specified in the 2007-2008 Academic Plan.

For each college/school, the chart below lists the amount of designated space (such as office and research lab). While classrooms are generally not assigned to individual colleges and schools, the chart does list the amount of classroom space that the Schools/Colleges collectively use, based on weekly student contact hours.

It is noted that more detailed space studies will occur as projects enter a pre-design phase. In addition, as renovation projects and new facilities are designed, these estimates will be refined and updated.

<table>
<thead>
<tr>
<th>HEGIS</th>
<th>EXISTING SPACE (ASF)</th>
<th>FUTURE (ASF)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALL CAMPUSES - DESIGNATED SPACE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Engineering and Applied Science (CEAS)</td>
<td>104,000</td>
<td>296,000</td>
</tr>
<tr>
<td>College of Health Sciences (CHS)</td>
<td>52,000</td>
<td>72,000</td>
</tr>
<tr>
<td>College of Letters and Science (L&amp;S)</td>
<td>474,000</td>
<td>577,000</td>
</tr>
<tr>
<td>College of Nursing (CON)</td>
<td>40,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Graduate School (GS)</td>
<td>14,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Helen Bader School of Social Welfare (SSW)</td>
<td>16,000</td>
<td>22,000</td>
</tr>
<tr>
<td>Lubar School of Business (LSB)</td>
<td>56,000</td>
<td>56,000</td>
</tr>
<tr>
<td>Peck School of the Arts (PSOA)</td>
<td>238,000</td>
<td>263,000</td>
</tr>
<tr>
<td>School of Architecture and Urban Planning (SARUP)</td>
<td>72,000</td>
<td>71,000</td>
</tr>
<tr>
<td>School of Education (SOE)</td>
<td>41,000</td>
<td>45,000</td>
</tr>
<tr>
<td>School of Information Studies (SOIS)</td>
<td>9,000</td>
<td>12,000</td>
</tr>
<tr>
<td>School of Freshwater Studies (SFWS)</td>
<td>82,000</td>
<td>151,000</td>
</tr>
<tr>
<td>School of Public Health (SPH)</td>
<td>0</td>
<td>32,000</td>
</tr>
<tr>
<td>General Research - to be distributed</td>
<td>0</td>
<td>36,000</td>
</tr>
<tr>
<td>Classroom (General Pool)</td>
<td>152,000</td>
<td>197,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,350,000</td>
<td>1,907,000</td>
</tr>
</tbody>
</table>
SPACE NEEDS BY SCHOOL/COLLEGE

- COLLEGE OF ENGINEERING & APPLIED SCIENCE
- COLLEGE OF HEALTH SCIENCES
- COLLEGE OF LETTERS & SCIENCE
- COLLEGE OF NURSING
- GRADUATE SCHOOL
- SCHOOL OF SOCIAL WELFARE
- LUBAR SCHOOL OF BUSINESS
- PECK SCHOOL OF THE ARTS
- SCHOOL OF ARCHITECTURE AND URBAN PLANNING
- SCHOOL OF EDUCATION
- SCHOOL OF INFORMATION STUDIES
- SCHOOL OF FRESHWATER SCIENCE
- SCHOOL OF PUBLIC HEALTH
- GENERAL RESEARCH

**Existing Floor Area (ASF)**

**Future Space Needs (ASF)**
ACADEMIC ORGANIZATION

UWM has developed a strategy for distributing key programs and facilities throughout the region to realize its strategic missions of partnership, access, community engagement, and economic development. In addition to Kenwood and the East Side, additional areas were identified during the planning process to support the UWM vision. These include:

- The Brewery
- The Harbor
- Innovation Park
- Columbia-St. Mary’s
- Plankinton
- Lincoln Park
- U.S. Cellular Arena

It should be noted that these sites were identified by the University prior to commencing the Master Plan and were reviewed and assessed to determine the appropriateness of the sites for the needs identified during the planning process. Other sites were considered and reviewed during the planning process.

The following principles govern the decisions made:

- Maintain the majority of academic activity at Kenwood
- Improve campus life at Kenwood and on the East Side, including expanding University housing options in the area surrounding the academic environment
- Establish a critical mass of UWM activities at each site
- Minimize movement between UWM sites through the strategic location and scheduling of programs
- Expand partnership opportunities
- Improve and expand student amenities
- Enhance connectivity between all UWM sites

Based on an evaluation of available space at Kenwood and the Opportunity Sites, the following space allocation strategy was developed:

- **Kenwood and the East Side**— will remain as the center of academic and student life activity. To that end, uses that focus on the student experience are given priority at Kenwood. The East Side includes Kenilworth, Riverview, and USRB.
- **The Brewery**—The Brewery initially was considered as a potential expansion site as a result of a private donation to accommodate the public health program. The regeneration potential, downtown location, and adjacent institutions make it an attractive expansion site. Given the context and proximity to downtown, the Brewery is identified as a location for the public, community, and clinical health programs.
- **The Harbor**—The Harbor site offers an essential component for the School of Freshwater Science: immediately adjacent dock access to Lake Michigan and existing land ownership. The site also offers space for partnerships as well as the opportunity for the University to act as a catalyst for redevelopment of the Fifth Ward.
- **Innovation Park**—Wauwatosa is attractive for research clusters that would benefit from partnership opportunities and association with the Medical College of Wisconsin, the Blood Center, area hospitals, the Children’s Research Center, the Milwaukee County Research Park, and GE Medical.
- **Columbia Saint Mary’s (CSM)**—CSM is identified as a potential for academic facilities. The site would also offer potential locations for housing, student life, student health services, child care, and back office functions.
- **Plankinton**—Located in downtown Milwaukee, the Plankinton Building is a mixed-use facility that houses the School of Continuing Education, conference rooms, classrooms, a dining facility, and administrative offices on the 6th and 7th floors. The ground floor of the building is dedicated to retail and dining establishments. UWM’s presence at the Plankinton Building is an important foothold in the downtown core. As the University seeks additional administrative office space in the future, it may consider expanding its presence within Plankinton. The University has the possibility of building out another 10,000 square feet of space on the 5th floor.
- **Lincoln Park**—Lincoln Park is located northwest of the Kenwood Campus, bounded to the east by Highway 43, to the west by Green Bay Avenue, and to the south by Hampton Avenue. The site, which currently includes the UWM baseball field, is envisioned to accommodate much needed athletic expansion, particularly for baseball, tennis, soccer, track, and a practice facility. Future utilization of Lincoln Park should be the subject of a detailed programming and master plan study for Athletics and recreation.
- **U.S. Cellular Arena**—The U.S. Cellular Arena, located in downtown Milwaukee on West State Street, currently hosts the UWM men’s basketball team. The venue remains a viable option for continued use due to its ability to accommodate the capacity required by the Horizon League for men’s basketball and its availability for the University’s use.
**CAPACITY OF KENWOOD AND EXISTING FACILITIES**

Kenwood is estimated to have a potential expansion capacity of 1,500,000 gsf (includes demolition of underperforming buildings), assuming reasonable urban design and infill strategies. As mentioned, the projected space needed to accommodate the UWM academic and research programs is 1,500,000 gsf, excluding residential (1,750,000 gsf including residential). It should be noted that the comparison of capacity to space need excludes other key considerations such as parking, program adjacency, and partnerships.

The floor area ratio (FAR) is a measure of density, which considers the total building square footage divided by the site size square footage. By precinct, the resultant FAR increase as follows:

<table>
<thead>
<tr>
<th>PRECINCT</th>
<th>EXISTING</th>
<th>FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southwest</td>
<td>1.08</td>
<td>1.78</td>
</tr>
<tr>
<td>Southeast</td>
<td>1.17</td>
<td>1.32</td>
</tr>
<tr>
<td>Northeast</td>
<td>0.69</td>
<td>0.84</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.99</td>
<td>1.30</td>
</tr>
</tbody>
</table>

The most densely developed area of the campus has an FAR of 1.17. By comparison, FARs of 2.0 to 2.5 are common within the academic core of many campuses.

In developing a strategy for accommodating the future academic and research space needs of UWM, the following issues were considered:

- Kenwood has the expansion potential to accommodate the majority of anticipated growth; however the University will need to reserve some of this land for future core academic needs. Parking access is also a key issue that constrains development potential at Kenwood.
- Existing Kenwood space and expansion site opportunities are not appropriate for some types of research space and research partnership activities.
- Campus life and housing improvements are high priorities for the University that will require space in the vicinity of the Kenwood campus.
- Off campus locations will need to be considered to accommodate the full range of space needs.

In reviewing the range of program needs, the following academic and research space needs have been identified as good candidates for an off-campus location as of this writing. These include:

- Academic and research programs that require specialized locations and research facilities, such as Freshwater Science.
- Graduate programs that would benefit from proximity to partners, such as the School of Public Health, the College of Health Sciences, and the School of Education.
- Research programs that would benefit from additional space and adjacency to external partners, such as various programs within Engineering and the College of Nursing.
- Clinical and research functions of the School of Health Sciences, Nursing, Education, and Social Work, given their ongoing research in the neighborhoods and need for easy access for clients.

With these programs in mind, and an eye toward future growth within the City and the metropolitan area, the Master Plan presents a strategy for existing and potential Opportunity Sites. This strategy must remain flexible since the availability of Opportunity Sites cannot be assured.

**ACADEMIC IDENTITY AND COLLABORATION**

In any scenario, the Kenwood campus will continue to serve as the primary hub for educational delivery and student life. The campus is the center for most of the academic schools and colleges, and is also home to the Golda Meir Library, student and academic services, administration, and student and residential life. New academic facilities will allow for expansion and relocation of academic and research programs in Engineering, Arts and Sciences, Allied Health, Education, and Social Welfare. These new facilities will present backfill opportunities as the remaining academic programs and administrative functions expand and improve the quality of their space.

With the addition of the School of Freshwater Science and the School of Public Health, the University will have a total of fourteen schools and colleges. In a few cases such as the Lubar School of Business, the School of Architecture and Urban Planning, and the School of Nursing, the schools are synonymous with their buildings. This allows for a strong identity for the program, but with the concomitant trade-off that collaboration and casual interaction through adjacency with other programs may be reduced. Over the years, the College of Letters and Sciences—and in particular the Humanities and Communication and the Social Science programs—have been dispersed widely across the campus. While there may be interactions with adjacent schools and colleges, these would be largely haphazard. The desire for greater collaboration and connections within these programs was expressed during the Master Plan process—the ability to walk down the hall and interact with colleagues with shared interests.

An intent of the Master Plan is to balance two tensions: adjacency within disciplines and collaboration across disciplines. The program for new facilities and backfill strategies will create a series of academic neighborhoods on the Kenwood campus. The principles underlying the academic neighborhoods are

1. The academic neighborhoods build on current program locations wherever possible especially where significant recent investment has been made in specialized facilities.
2. Unnecessary relocations and double moves are to be avoided where ever possible, although use of swing space on a temporary basis may be necessary in some cases.
3. The adaptive reuse qualities and the character of the existing buildings are considered, especially the historic buildings and the large footprint high rise buildings.

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3. The estimated need is current as of March 2010. Numbers will continue to be refined based on anticipated additional feedback and consultation with the University.
4. The program accommodation includes an allowance within each school and college for study and collaborative space, which is expected to occupy and enliven the ground floors in particular.

5. One-stop student service programs will be combined with other student and academic services to form a larger “Main Street” concept, with high access programs on the ground floor and back office functions on the upper floors.

6. University Information Technology Services (UITS), which is currently scattered in a number of locations, will also be consolidated with the intent that high access programs occur on the ground floor.

The overall vision for the academic neighborhoods on the Kenwood campus is as follows:

- **Science & Engineering**—In the southwest precinct of the Kenwood campus, a series of new buildings will present a bold, innovative identity for UWM. The existing EMS, Chemistry, and Lapham buildings and several new interdisciplinary research centers (IRC) will meet most of the projected growth needs in the College of Engineering and Applied Science and within the Natural Sciences of the College of Letters & Sciences. The existing Physics building will be demolished with replacement of space provided in new and existing buildings in this precinct. The Children’s Center within the Kunkle building will be relocated to another site on or near the Kenwood campus. Based on future projections and the desire to locate research near private partners, some research space could locate at the University Services and Research Building, the Harbor, or Innovation Park.

- **Health, Education, and Social Welfare**—The northwest corner of the Kenwood campus is targeted to become an interdisciplinary center for health and social programs that pursue shared academic innovations. Home to the Colleges of Nursing and Health Sciences, and the Schools of Education and Social Welfare, new interdisciplinary buildings will complement the existing Cunningham facility and update laboratory and clinical space used by these programs. The campus health care center, currently located in Norris, could be relocated to benefit from the adjacency with these programs. Englemann will be well suited for both office and the student life programs supporting this new academic cluster.

- **Letters & Science**—The east side of campus has some of the most beautiful historic buildings on campus and is well suited to be the home to the core academic programs in the Humanities & Communications and the Social Sciences within the College of Letters & Sciences. Many of these programs are centered here now, although consolidation will strengthen the identity of these programs, while allowing for greater cross disciplinary work within the College. New social space in an expanded ground floor of Curtin will provide a vibrant center to this part of campus. A new academic building on the footprint of Norris will provide specialized laboratory space required by the Psychology department as well as expansion for the College overall. Classrooms in the centrally located Bolton will continue to support this academic program.

- **Campus Main Street/Student Life**—The central spine of the campus will become the common meeting ground for students, faculty and staff. Anchoring either end of the Main Street will be athletics and recreation on the north (Pavilion and Klotsche) and the Student Union on the south. The Golda Meir Library stands in the center of the campus along the main spine as a symbol of the academic knowledge and a new social meeting ground. Student and academic services and information and technology, which are widely dispersed around campus today, will be centralized in Bolton and Enderis. An addition to the ground floor at Enderis will make the building more welcoming while accommodating more of the high access programs that need visibility, similar to those in Bolton now. Long term expansion may trigger the need for back office functions to move to Plankinton or another downtown location. This central spine also builds on the idea of Library expansion to support teaching and learning space, as well as the learning commons.

- **Other**—A number of buildings on campus are not affected by space moves, such as the School of Business and the School of Architecture/Urban Planning, which will accommodate program growth within existing footprints, and the Athletic programs, which may expand at Lincoln Park, and recreation programs, which are expected to expand at or near other residential sites.

The following pages document the intended space moves for the Kenwood campus. In each instance, program need is shown in comparison with the total space capacity available. This results in either a surplus or deficit of space to accommodate the targeted program in each area. This is useful in determining relative “fit” of a program in a particular building or area of campus. The proposed moves establish a vision for the future that will be incrementally implemented over the next twenty years. Detailed space needs and moves are contained in the Technical Appendix.
A series of Interdisciplinary Research Centers (IRC) that serve primarily science and engineering will be located on the southwest quadrant. The deficit space need will be accommodated at Innovation Park, University Services and Research Building, and The Harbor. Other interdisciplinary clusters may co-locate here as well.

New buildings west of Englemann Quad will accommodate programs in Health, Education, and Social Welfare. Because of the parking demand associated with clinical functions, as well as the desire to improve access for Greater Milwaukee, these facilities will be located at the Brewery.

A new performing arts facility immediately east of the Union will accommodate space needs for the Arts, including pre-function facilities. Existing arts facilities at Kenilworth will be maintained.

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*Note: includes Kenilworth
The eastern portion of campus will continue to accommodate programs in the Social Sciences and Humanities and Communication. Building additions to Curtin and Enderis, as well as a new academic building on the site of the current Norris Hall, will provide space for long-term program accommodation.

Student Services will cluster along the central spine of the Kenwood campus, particularly in Bolton Hall, the Bolton Hall addition, the upper floors of Enderis and the Enderis addition.

New campus life facilities include additions and renovations to the Union, the Library, and the Pavilion. Additional “campus life” and study space is distributed in new academic buildings, at an average of 10% of new building program.

NOTE: TOTAL NEW PROGRAM NEED SHOWN ABOVE IS APPROXIMATELY 1.35 MILLION GSF; TOTAL NEED WITH FRESHWATER SCIENCE AT HARBOR IS 1.5 MILLION GSF.
RESIDENCE LIFE

Residence life plays a vital role in supporting the academic and research missions of UWM. University housing is more than just beds; it is an extension of the classroom, providing a 24-hour living/learning environment. University-operated housing also provides students with a structured and supervised environment, thereby reducing the number of students living in the surrounding neighborhood and avoiding many of the adverse impacts on long-established communities.

The success of the UWM residential program has led to a surge in demand over recent years. The University currently has a housing capacity of 3,615 beds, 2,800 of which are on the Kenwood campus in Sandburg and Purin Halls. The remaining 815 beds are located off campus in Kenilworth Square and Riverview, 1.5 miles from the Kenwood campus. Approximately 54% of all freshmen live in residence halls; however, the demand far exceeds the supply. In fact, each year the University turns down approximately 1,500 freshmen applicants.

The University has made a commitment to provide housing for first year students. To meet this goal, a campus-wide total of an additional 1,385 beds are planned, which will provide a total bed capacity of 5,000 beds. The first phase with 750 beds, called Cambridge Commons, is located adjacent to the existing Riverview Housing and is currently in construction with occupancy projected for Fall 2010. A site for future housing has not yet been identified.

Residential life is a sound investment for the University because it promotes student success, has a positive impact on retention and graduation rates, and allows for more continuous supervision of and support for student development. Moreover, by providing housing that is proximate to campus, students can be more holistically involved in the University’s academic and social learning environment. The University is aware that housing near campus is a sensitive issue for the surrounding neighborhoods and is engaged in ongoing efforts in response.

To support the increasing residential population, and to make up for current shortages, the University will need to invest in additional outdoor athletic and recreation facilities, such as multipurpose fields. To the extent possible, recreation should be co-located with residence halls. The University will need to balance this goal with the goal of locating residences close to the Kenwood campus, which has a lack of available land. In addition to recreation, given this lack of land and the significant requirements of athletic facilities, remote locations are likely necessary.

At the same time as the University is expanding housing options for students, strengthening surrounding neighborhoods is also important. A series of initiatives, such as the existing student ambassador program known as COAST (Community Outreach and Assistance to Student Tenants). These initiatives could include working with off-campus students to educate them about being good tenants, as well as working with the City of Milwaukee and landlords to ensure appropriate living standards are met. Expanding initiatives to increase the number of faculty and staff that live in the surrounding Kenwood neighborhood, building upon the existing “Walk to Work” program will also benefit the vibrancy of campus life.
KENWOOD CAMPUS AND THE EAST SIDE
KENWOOD CAMPUS AND THE EAST SIDE

As UWM continues to build upon the intellectual and physical critical mass that exists on the Kenwood campus, the University has identified opportunities throughout the East Side to meet the evolving programmatic and student life needs. Properties that comprise UWM’s East Side land and lease holdings include the Kenwood campus, the Alumni House, The Hefter Center, Zelazo, the Chancellor’s Residence, University Services and Research Building, Riverview and Cambridge Commons, and Kenilworth.

SITE STRATEGY

The following rationale and use strategy applies to the East Side properties:

Kenwood

The Kenwood campus serves as the primary hub for the academic experience and student life. The campus includes several academic buildings, as well as administrative offices, a student union, athletic and recreational facilities, and student housing in the Sandburg and Purin Halls. New academic facilities will primarily host programs for science, technology, engineering, and mathematics (STEM) and the arts. These new facilities will allow for backfill opportunities for the remaining academic programs and administrative offices.
Alumni House
The UWM Alumni House, formerly known as the Kenwood Conference and Alumni Center, is an historic structure that sits on 3.9 acres of land at the east end of Kenwood Blvd. The Alumni House will continue to house the offices for Alumni Relations. Future renovation of this facility will be considered depending on funding availability.

University Services and Research Building
The University Services and Research Building (USR), located approximately three miles northwest of the Kenwood campus, is a UWM facility that currently hosts physical plant facilities services. The USR will continue to serve in this capacity in the future, as well as provide facilities for some components of engineering research.

Riverview and Cambridge Commons
As the demand for University housing has increased, UWM has expanded beyond the Kenwood footprint. Located south of Kenwood campus along North Avenue, Riverview houses approximately 475 first-year students. The complex includes dining and fitness facilities and is served by a 24/7 shuttle system that connects students with the Kenwood campus.

The University is currently constructing a new housing facility, known as Cambridge Commons, similar to the existing Riverview and on an adjacent site.

Kenilworth
Kenilworth is a mixed-use complex of approximately 500,000-square-feet, which houses some components of the Peck School for the Arts, as well as the Apartments at Kenilworth Square for graduate students and visiting faculty. The facility also includes indoor parking, event space, and first-floor retail. Originally built in 1914 as part of the Ford Motor Company, UWM’s reuse of this historic structure contributes added vibrancy to the urban district in which it is located.

As UWM continues to build upon the intellectual and physical critical mass that exists on the Kenwood campus, the University has identified opportunities throughout the East Side to meet the evolving programmatic and student life needs.

The Children’s Center
The Children’s Center, currently located in the Kunkle Building, is a critically important asset, which serves both the campus and the broader community. In the context of the overall master plan and development proposed for the southwest quadrant of campus, the relocation of the Children’s Center will be necessary. Key criteria for the relocation of this facility include close proximity to the Kenwood campus, adequate pick-up and drop-off access, an adjacent outdoor play area, and a footprint large enough to accommodate ground-level classrooms.

The Norris Health Center
The Norris Health Center provides an important service for UWM students. This Center, along with other reunited Student Health Services, could be potentially relocated to the Southwest Precinct to benefit from the adjacency with programs in Health, Education, and Social Welfare, as well as to improve access, enlarge the facility, and provide additional exam rooms. Other locations under consideration include the Columbia-St. Mary’s Opportunity Site. The current site of the existing Norris Health Center will be developed for much needed classroom and laboratory space for the Social Sciences.

The Hefter Center
The Edith S. Hefter Conference Center, located on the corner of Hartford Avenue and Lake Drive, houses a one-of-a-kind venue well-suited for University departmental retreats, small faculty gatherings, seminars, and official receptions.
KENWOOD DESIGN FRAMEWORK

Vision
The following fundamental themes and ideas characterize the campus vision:

Urban Campus
The Master Plan supports UWM’s role as an urban campus. Programmatically, the Plan provides venues where both the campus and neighborhood communities can come together, such as the theatre and bookstore. Building placement and height responds to the neighborhood context, with higher density located in the UWM campus core and with lower heights along campus edges. Building setbacks allow for significant and graceful campus landscape edges that ease the transition from campus to neighborhood. Transportation portals provide key arrival points to the campus from the City’s public transit and campus shuttles.

Interconnected Learning Environments
Collaboration is encouraged through building and land use, as well as strategic architectural and open space interventions. The Master Plan considers programmatic adjacencies, and provides flexible venues that encourage collaboration and interdisciplinary interaction. Interdisciplinary nodes are planned as centers for academic faculties that foster an open and collegial atmosphere for faculty and student engagement between departments.

Pedestrian-oriented Campus
The Master Plan preserves and enhances the pedestrian qualities of the campus. It aligns interior and exterior circulation, coordinates pedestrian movement with transit portals, and enhances pedestrian paths and bicycle routes in coordination with the regional system, thereby improving the way in which one experiences the overall campus.

Working Landscape
The proposed open space and landscape system is planned to function as a “working landscape” that embraces, integrates, and embodies design, environmental, and academic values. The working landscape responds to the climate and natural conditions of the site, working with its features to maximize their functional qualities. Through sustainable design and dedication to environmental responsibility will emerge a rigor to placemaking and a commitment to creating vibrant campus environments.

Indoor-Outdoor Engagement
The Master Plan emphasizes physical and visual connections between indoor and outdoor environments. Facades are articulated with transparent materials, while circulation is brought to the edges of buildings wherever possible. Open spaces and student life programs are strategically situated along southern facades of proposed buildings to capture sunlight, activate building edges, and ease the transition between the indoor and outdoor spaces.

EXTENDING THE SOCIAL LEARNING ENVIRONMENT OF THE UNION WESTWARD TO THE IRC
Land and Building Use Framework

The Kenwood campus is comprised of three distinct precincts: the southwest precinct, the southeast precinct, and the north precinct. These precincts are distinct both architecturally and programmatically, and each is characterized by a series of buildings that strongly relate to an open space element. At the same time, each precinct is linked to one another via an interconnected pedestrian network.

Southwest Precinct

The southwest precinct is bounded by Cramer Street to the west, Kenwood Blvd to the south, Maryland Avenue to the east, and Hartford Avenue to the north. Existing buildings in this precinct include Cunningham Hall, Englemann Hall, Architecture and Urban Planning Building, Physics Building, Kunkle, Chemistry Building, Engineering, Math, and Sciences (EMS) Building, and Lapham Hall. Together, these buildings form a district identity of Science, Technology, Engineering, and Health.

Redevelopment Sites

The Physics Building, Kunkle, and the adjacent surface parking lot offer opportunities for redevelopment in this precinct of campus. The Physics Building is in poor condition, as determined by the Phase A Facility Condition Report. While Kunkle’s condition is considered fair, both Kunkle and the Physics Building do not maximize use of this parcel.

As noted in the space analysis, the campus has a pent-up demand for interdisciplinary teaching and research lab space, which is needed to foster collaboration and partnership among the sciences. The health sciences also have a demand for additional space, particularly Nursing.

Interdisciplinary Research Center (IRC)

The Master Plan includes a series of new buildings, collectively known as The Interdisciplinary Research Center (IRC), in the southern portion of the southwest precinct, adjacent to the existing science and technology-related buildings and on the sites at the corner of Kenwood and Maryland. Three new buildings march along Kenwood Blvd in an east-to-west fashion, framing the street edge. The easternmost of these buildings, along Maryland Avenue, is planned as the Phase 1 IRC. The remaining three buildings are located directly to the west. Collectively, this series of buildings is united by an east-west, two-level interior spine of social and learning spaces. This spine provides the opportunity for informal collaboration among students, faculty, and staff in an environment that is protected from the outdoor elements. At the same time, these spaces relate strongly to the outdoor environment, reinforced with strong visual connections. Three new quads are planned for this area, all of which are intimately scaled and have southern exposure that maximizes sunlight and minimizes wind exposure.

Health, Education, and Social Welfare

A series of new health, education, and social welfare-related buildings anchor the western edge of this precinct, occupying the site of the former Cunningham parking lot. The presence of these buildings forms the eastern edge of Englemann Field, which will be maintained as a recreation amenity, but which will be shifted slightly to the east. The western edge of these buildings, which step down to a neighborhood scale of three stories, frame Cramer Street. The new buildings provide primarily classroom and laboratory space for Nursing, Health Sciences, and Public Health, as well as for the College of Education and the School of Social Welfare. The buildings are configured to accommodate a direct north-south pedestrian connection that links to the IRC in the south.

Englemann Hall is maintained as an iconic building in this precinct, with uses related to Health, Education, and Social Welfare, as well as general student life and study space. The existing administrative uses will be consolidated and relocated to a more appropriate space, as the administrative use currently in Englemann is not the highest and best use for this location. A new entryway for Englemann is envisioned as a way to improve the linkage between the southwest precinct and the Columbia-St. Mary’s parcel.

The Architecture and Urban Planning Building, located on the northeastern edge of this precinct, will continue as both the programmatic and physical seam between science and technology in the southwest and the more centrally-located professional schools, including the Lubor School of Business.
CHARACTER SKETCH OF INTEGRATED LEARNING ENVIRONMENT AT IRC, LOOKING WEST FROM THE UNION
2-LEVEL CIRCULATION SPINE LINED BY TRANSPARENT LEARNING SPACES, INDICATED IN PURPLE
CHARACTER SKETCH OF THE INTEGRATED LEARNING ENVIRONMENT AT THE LIBRARY
CIRCULATION SPINE LINED BY TRANSPARENT LEARNING SPACES, INDICATED IN PURPLE
Southeast Precinct

The southeast precinct is bounded by Kenwood Blvd to the south, Maryland Avenue to the west, Hartford Avenue to the north, and Downer Avenue to the east. Historically, this precinct has served as the hub of student life, accommodating both the Union and Library, as well as hosting programs in Business, the Arts, and the College of Letters and Science. In addition to the Union and Library, facilities in this precinct include the Lubar School of Business, Bolton Hall, Mitchell Hall, Curtin Hall, Garland Hall, Pearse Hall, Mellencamp Hall, Music Building, Theatre Building, Art Building, and Arts Lecture Hall.

Redevelopment Sites

Mellencamp Hall, a two-story building in poor condition, occupies a key parcel within the arts district and along the highly visible Kenwood corridor. Currently in use by Enrollment Services and Financial Aid and Student Employment Services, the site is better suited to accommodate needed arts-related facilities. As such, the student services will be relocated. Together with the student services already located on the ground floor of Bolton, the pair form a new student services spine that runs north-to-south through the underbelly of the Library. Mellencamp will then be demolished to make way for a new performing arts facility, which will serve as an iconic building to welcome both the UWM and the broader community onto campus. The large open space to the east of the performing arts facility, which also wraps around Mitchell Hall, is envisioned to become a sculpture garden.

Proposed Improvements

Other improvements along the Kenwood corridor include an addition to the south side of the Union as well as a new addition along the Union’s western edge at the corner of Maryland and Kenwood, which could accommodate a range of functions including designated space for UWM Alumni activities. Both facilities are planned with transparent facades to reveal internal activity. Together with the planned theatre, these facilities form an active edge along Kenwood that announces the UWM presence and which celebrates Kenwood Blvd as the front door of the Kenwood campus.

The Library undergoes a transformation from a traditional-style study environment to a dynamic learning community space with the addition of new flexible space in the currently open area that transects the Library from north to south. A building addition is also planned for the north side of the Library, further reinforcing the major north-south spine that connects the campus from Kenwood Blvd northward to the Pavilion. This addition also brings the entrance of the Library to Hartford Avenue, thereby receiving pedestrians from the north into the Library, Spaight’s Plaza, and the student life zone. This building addition will support collaborative teaching and learning, and be an extension of the already completed Soref Learning Commons. An addition to the north side of Bolton Hall further reinforces this spine as the student life corridor and provides additional space for one-stop-shop student services.

Garland, Pearse, and Curtin Halls will continue to provide space for the humanities. An addition to the north side of Curtin Hall will not only provide new space to accommodate growth in these programs, but also will serve as an iconic element both along the north-south campus spine and also as the eastern terminus of the east-west spine that connects the sciences in the west to the humanities in the east.

The Hartford School will remain as an important partner to UWM and entity within the Milwaukee Public School system. While this situation will remain for the foreseeable future, UWM may be interested in University re-use should this parcel ever become available.
North Precinct

The north precinct is bounded by Hartford Avenue to the south, Maryland Avenue to the west, Edgewood Avenue to the north, and Downer Avenue to the east. This zone is characterized by student life—particularly residence halls and athletics and recreation facilities—as well as academic programs in Education and Social Science. The Downer Woods is also a prominent feature of this precinct, providing an emblematic natural open space amenity that anchors the northern edge of campus. Buildings here include Sabin, Johnston, Merrill, Holton, Enderis, and Chapman Halls, the Greene Museum, Klotsche Center, the Pavilion, and Sandburg Residence Halls.

Redevelopment Sites

Norris Hall offers a redevelopment opportunity, as the building’s limited size and height do not take advantage of the parcel. The demolition of Norris allows for the construction of a new academic building for use by social sciences and potentially others, which includes research spaces and classrooms for the Psychology department. In doing so, Psychology maintains its adjacency to the other social sciences. The demolition of Norris also allows for the expansion of Klotsche on its southern façade to provide additional athletic and recreation space for the campus.

Proposed Improvements

A ground floor addition to the base of Enderis could accommodate the student services once located in Mellencamp Hall. In this way, services are aligned along the highly active north-south pedestrian spine that leads through the Library and past the other student services on the ground floor of Bolton. Together, all three building additions—Enderis, Social Sciences building, and Klotsche—form an active edge along this heavily utilized north-south corridor. The corridor terminates to the north at a new iconic entryway to the Pavilion.

Sandburg Residence Halls and Chapman Hall remain unchanged; however, the open space around these facilities becomes more usable. While some parking spaces will be maintained, the removal of the Chapman parking lot not only minimizes traffic congestion along Maryland, but also creates an extension of the Downer Woods to the south.
VIEW FROM NORTH PRECINCT TOWARDS GOLDA MEIR LIBRARY
Open Space and Landscape Framework

The proposed open space and landscape framework is intended to function as a “working landscape” that embraces, integrates, and embodies design, environmental, and academic values. The working landscape responds to the climate and natural conditions of the site, working with its features to maximize their functional qualities. Through sustainable design and dedication to environmental responsibility emerge a rigor to placemaking and a commitment to creating vibrant campus environments.

The landscape framework considers treatment of the following zones: Downer Woods, the historic landscape of the eastern portion of campus, and new development parcels in the southwest precinct. Downer Woods will be maintained as a key component of the landscape framework and will symbolically extend southward. Landscape design in the historic zone will respond contextually to the existing buildings and open space structure. In the southwest precinct, new entry courts, plazas, and quads establish an open space network that connects to the broader campus system. Specific recommendations are contained in the Design Guidelines section of this report.

Landscape Types

The campus landscape and open space framework operates as an integrated overlay that seamlessly links the formal and informal open spaces on campus. The Master Plan strengthens the existing landscapes, establishes a sense of hierarchy and identity, and improves connections between open spaces. The campus contains a variety of open space and landscape elements, which are guided by the following landscape design objectives.

Landscape Design Objectives:
- Understand the campus’ assets and opportunities
- Create a rich and layered landscape
- Establish an open space framework with a variety of landscape typologies, enhancing and complementing the existing landscape
- Create an open space network with multi-functional places where people can walk, gather, rest, work and play outdoors
- Create ‘places to be’ rather than ‘passage-ways’
- Emphasize the ‘inside-outside’ relationship between architecture and landscape
- Improve movement across campus with a clear, comprehensible yet minimal network of pathways
- Establish places for art displays on campus
- Develop innovative and integrated open space concepts that emphasize sustainability for an environmentally responsible landscape
- Integrate the idea of rainwater management practices into the various landscape types encompassed in the open space
- Introduce native trees and plant material that adapt to the site conditions and plantings that do not require irrigation or significant watering.
Primary Gateways
The Master Plan reinforces the unique identities of all campus entries. The gateways are located along campus edges at key intersections. In particular, three gateways will serve as primary campus entrances. As gateways to the University, each celebrates the identity of the campus and enhances the sense of arrival. Each of the gateways aligns with existing and planned transit stops so that visitors can be received and welcomed into UWM.

Southwest Gateway
A potential future transit line along Oakland Avenue serves as an impetus for establishing a campus gateway at the corner of Cramer Street and Kenwood Blvd. In this way, the Southwest Gateway serves as a primary pedestrian entrance, and encourages connections to both the campus and the surrounding residential neighborhood to the west. The new IRC defines this entrance and receives visitors into the Science and Engineering academic precinct. The plaza and landscape surrounding the IRC provide a unified entrance where students, faculty, staff, and visitors can wait and socialize.

Maryland and Kenwood Avenue Gateway
A gateway at the corner of Maryland Avenue and Kenwood Blvd welcomes visitors into the central portion of campus. This functional entrance serves as a major bus drop-off zone and is anchored to the west by the new IRC and to the east by the Union addition. A new indoor bridge connection links the Union across Maryland Avenue to the IRC.

Union Gateway
As it does currently, the Union will serve as a primary gateway into the campus via its entry along Kenwood Blvd. A new addition to the southern façade of the Union will serve as an iconic element to welcome students and visitors to campus. This gateway will serve as the primary visitor entrance and will incorporate a transit portal featuring an indoor waiting and lounge area and commuter amenities such as convenience retail and limited food/coffee services.
Pedestrian Connectors
Several pedestrian connectors are proposed in the Master Plan. Connectors serve as both landscape and building linkages through the site that complement and connect the buildings and open space elements.

North—South Connectors
In addition to the street network that connects the campus north to south, several planned corridors link the campus internally.

The principal north-south connector, serving as “Main Street” for the campus, framed by student services and campus life functions. The connector serves as “Main Street” for the campus, framed by student services and campus life functions. The connector is envisioned as having both indoor and outdoor components. Building façades with ground-floor transparency frame the pathway, maximizing the visual connection between the indoor and outdoor environments. This includes the opening up of the east façade of Bolton Hall, the enclosure of the “underbelly” of the Library, the ground floor addition to Enderis, and a new academic building north of Enderis Hall. The axis is marked with an addition to the Pavilion that serves as a beacon at the terminus of this key corridor.

A second north-south connector is located west of the “Main Street” spine, extending from the Union, northward past the east side of Lubar and the Hartford School and ultimately connecting to the Sandburg Towers. This connector is improved by the addition of trees and new pavement materials.

A third north-south connector begins at the entry court along Kenwood, immediately west of the Phase 1 Interdisciplinary Research Center (IRC) and extends northward west of Lapham Hall, through Englemann Hall, and ultimately connects to the Columbia-St. Mary’s parcel. This corridor passes through both a new Engineering and Life Sciences quad as well as the re-imagined Englemann Field, providing gathering spaces at points along this corridor.

A fourth north-south connector extends from the IRC at the corner of Cramer and Kenwood Avenue, northward through the series of buildings associated with the Health Sciences, Education, and Social Welfare. This corridor is primarily internal in nature but relates strongly to the exterior environment through the use of transparent materials.

East—West Connectors
In addition to the role that both Kenwood and Hartford Avenues play in providing east-west connectivity, new corridors are planned to provide clear and direct pedestrian connections within the interior of the campus.

The primary outdoor east-west spine extends eastward from the Health Sciences district and ultimately connects to a new building addition at Curtin Hall that marks the terminus of this axis. Active ground floor uses and an allée of trees clearly define this connection and make it an enjoyable pedestrian experience.

The primary indoor east-west spine extends eastward from the IRC, passes over the proposed enclosed Maryland Avenue bridge and connects into the new Union addition. This connection continues eastward through the existing “spine” of the Union to a new theater and ultimately terminates at Mitchell Hall. These internal corridors are conceived as lively places for interaction and collaboration, with student life spaces and classrooms that frame this circulation network.

Nodes of Activity
Nodes of activity are located at key areas along the north-south and east-west connectors. These nodes are areas of the campus that express the collaborative social learning environment and serve as anchors of student activity. The primary nodes are located at the Union, the Library, the IRC and Sandburg Commons.
Quadrangles

Quadrangles are central features of the open space and landscape framework. The Master Plan includes one new large quad as well as a series of smaller quadrangles. In each case, the quadrangles are framed by academic and student life buildings and provide human-scaled and habitable environments for gathering and socializing.

Englemann Field is transformed from a special-use space for athletics to a community-wide quad for passive recreation. This transformation will occur only after adequate soccer facilities are provided at Lincoln Park or elsewhere. The new quad will serve as the anchor to unite the health sciences, science and engineering, and the School of Architecture and Urban Planning in the southwestern portion of campus. In this way, Englemann Quad serves as an informal space for student, faculty, and staff interaction and a forum in which various academic disciplines can come together.

The Master Plan also recommends the creation of two new quads in the southwest precinct, one of which is located south of EMS and the other located southwest of Lapham Hall. The first is an intimately-scaled quad that creates strong visual relationships between buildings and provides comfortable micro-climates. The second is a sunken quad that serves the dual purpose of both a gathering space and a functional rainwater management space. All of the quads in this area of campus are connected by tree-lined pedestrian corridors.

Plazas

The Master Plan re-conceptualizes Spaights Plaza. While the space will still serve as a civic node and a part of the daily pedestrian movement on campus, Spaights will undergo a transformation to be a more hospitable space for congregating, ultimately serving as a type of “living room” for the campus. The Plaza will serve as an essential component within the larger north-south pedestrian corridor that links the campus from Kenwood Avenue northward to Downer Woods. Enhanced seating will foster a sense of community within this space during the warmer months. Year-round, new ground floor transparency to the façade of Bolton Hall will enhance the visual access between inside and outside public spaces. Specific design recommendations for transforming Spaights Plaza will be the subject of future studies.

Entry Courts

In addition to the larger campus open spaces, the landscape and open space framework includes a system of small-scale entry courts or courtyards. These paved courtyards primarily frame the Kenwood Avenue corridor and serve as an entrance to the academic clusters and IRC. The spaces are defined by a canopy of trees, tables, chairs, and benches to encourage informal studying and socializing. These spaces provide a transition from the pedestrian routes to the buildings.
The purpose of the urban design guidelines is to set forth the basic design principles that will provide a structure for campus development. These approaches to open space, the public realm, building orientation, proportions, and massing will ensure that the campus has a unified identity and scale. Specific architectural expression and definition of landscape should be done in the context within which new construction occurs and will be explored during implementation.

The guidelines contained in this section are Kenwood-focused. As the University moves toward implementing the vision set forth for the Opportunity Sites, design guidelines will need to be established that consider each site’s contextual setting.

The urban design guidelines are organized by the following precincts:

- Southeast Precinct
- Southwest Precinct
- North Precinct

Within these precincts, specific architectural style for building clusters (such as the IRC cluster, the Health/Education/Social Welfare cluster, the Arts district, and the Student Services spine) should be considered.
SOUTHEAST PRECINCT
The Southeast Precinct represents the most public portion of the campus, accommodating The Union, the Golda Meir Library, and a majority of student services. This precinct has a range of landscapes and buildings styles, including the more historic eastern edge, post-modern buildings in the center, and the more contemporary Lubar School of Business along the western edge of the precinct.

Open Space
- Pedestrian corridors are enhanced with new landscape treatment to provide better, more comfortable connectivity between existing quads.
- Spaights Plaza is reconfigured to maintain pedestrian circulation and adequate comfortable seating.
- Transformations to the Student Union and new performing arts facility improve the “front door” on Kenwood and clarify pedestrian access to the campus.
- Primary landscapes are maintained and enhanced, creating a strong campus identity along Downer Avenue.

Connectivity
- A network of indoor and outdoor corridors provides access throughout the precinct and link the informal study and student life amenities at the core of campus.
- Renovations to existing buildings like Bolton and the Library improve ground floor transparency and enhance visual access between inside and outside public spaces.
- Outdoor circulation paths align with existing and new entries to buildings.
- Pedestrian access from Kenwood is separated physically and visually from vehicular access.
Sun and Shadow
- South facing spaces that are well shielded from cold winter winds provide protected climate for outdoor seating in late fall and early spring.

Massing and Facades
- Ground floor transparency enhances visual access between inside and outside public spaces and enlivens outdoor spaces when weather prevents outdoor activity. This transparency should occur where activity is located within the building, not along the entire facade due to the counterbalancing need for energy efficiency.
- Building heights along Kenwood and Downer are scaled to match the neighborhood context (3 to 4 stories).
- Renovations, additions, and new buildings along Kenwood create a human scaled rhythm that creates identifiable arrival points.
SOUTHWEST PRECINCT

The Southwest Precinct will undergo the most change, with the cluster of new Interdisciplinary Research Center (IRC) along Kenwood Blvd and several new health-, education, and social welfare-related buildings along the western edge of the precinct. Given the share of planned new facilities, this portion of campus allows for the most flexibility in building design. At the same time, Englemann Hall is one of the most historic buildings on campus, so buildings and landscape will need to be contextual and complementary.

Open Space
- New quads are interconnected by tree-lined pedestrian corridors.
- Buildings are placed to optimize winter solar access to quads.
- Intimately-scaled quads create stronger visual relationships between buildings and provide comfortable micro-climates.
- Design of exterior campus spaces are seamlessly integrated with interior lobbies and circulation spaces.

Connectivity
- Interconnected exterior and interior walkways connect all buildings and open spaces in the precinct.
- Interior bridge connection across Maryland Avenue, linking Southwest Precinct to the Union
- Entries to buildings align with exterior pathways.
- Transparent ground levels create good visual access to building interiors.
- Upper story bridges can provide connections to corridors in existing buildings including Lapham, Chemistry and the EMS building.
Sun and Shadow
- New buildings create south facing, wind protected pockets for outdoor seating during the shoulder seasons.
- Buildings are primarily oriented east-west to create opportunities for passive solar, to optimize energy efficiency of buildings, and to shield outdoor spaces from northern winds.

Massing and Facades
- Buildings facing neighborhood streets step down to address two- to three-story residential scale.
- Building edges facing arrival points to campus and interior quads have transparent ground floor treatment.
- Building massing along major streets should be of a human scale with frequent entrances and passageways to the precinct core.
The North Precinct is characterized by a large amount of informal open space, represented by Downer Woods. Several historic buildings line the eastern edge of the Precinct, as well as Chapman Hall, which is situated along Hartford Avenue. Enderis and Sandburg Towers represent post-modern structures, and Klotsche and the Pavilion have more contemporary styles.

Open Space
- Woodland landscape is enhanced and extended south to Hartford to bring the Downer Woods experience into the heart of campus.
- Chapman Hall Parking is realigned to extend Downer Woods southward and improve connectivity across Hartford.
- Historic landscape is maintained and enhanced, creating a strong campus identity along Downer Avenue.

Connectivity
- The path network is enhanced and visual connectivity to woods is strengthened.
- A covered walkway from Enderis north to Klotsche is provided.
Sun and Shadow
- South-facing gathering spaces create protected environments for outdoor seating.
- Woods are planted to dampen northerly winter winds.

Massing and Facades
- Buildings facing neighborhood streets step down to address two- to three-story residential scale.
- Building edges facing important pedestrian spines and gathering spaces have transparent ground floor treatment.
The following building guidelines are intended to assist architects, planners, and campus designers in the design of future facilities and renovations. The recommendations align with the University’s sustainable objectives and desire for high performance buildings. They are intended to address energy use and optimize daylighting opportunities, while achieving a sense of place on campus. The building guidelines address the following categories:

- Building Placement
- Building Setbacks and Build-to Lines
- Building Form and Massing
- Building Heights
- Building Orientation
- Facades and Fenestrations
- Materials and Color
- Ground Level Treatment
- Building Entrances
- Roof Form
- Mechanical Equipment Screening
- Historic Significance
Building Placement
The placement of new buildings should respond to the alignment of adjacent buildings and adhere to the delineation of outdoor spaces as described in the Master Plan frameworks. New buildings should be placed to achieve maximum use of their sites, and to engage and improve the quality of the outdoor realm. Buildings should not block major pedestrian or visual corridors, or encroach on campus outdoor spaces. Building placement should respond to the existing comfort zones on campus, and optimize solar access and shade.

Building Setbacks and Build-To Lines
When designing along street edges, buildings and pedestrian pathways should be continuous and help define the edges of the campus and outdoor spaces. At campus edges, buildings should step back at the second or third level to respond to the lower scale of existing buildings along the street.

Along major streets, buildings should be set back from the street to allow for generous sidewalks and landscape treatment. Buildings should be situated in a manner that balances security and collegiality of the campus, while maintaining an open and welcoming atmosphere.

Building Form and Massing
Buildings should be simple in geometry and avoid excessive widths. Uninterrupted façade lengths should not exceed 125 to 150-feet to ensure a pedestrian scale to buildings. Where possible, building widths should be in the range of 60-feet to allow for daylighting and natural ventilation.

Building form should be modulated to minimize shade on adjacent buildings and open spaces, to protect from cold northwesterly winds in the winter and to avoid the creation of tunnel winds. Corners of the buildings should not be excessively articulated, except when located on a landmark view point. Landmark features should be located at important public places to create a sense of arrival and visual markers for the campus. Building corners and edges should be thoughtfully articulated when they act as visual focal points for key view corridors.

Typically the most public functions of a building, such as the building entrance, should be highlighted in the composition, but its proportions should be appropriate to the building’s use and scale.
Building Heights

Building heights are recommended to be a maximum of 6 floors to create a consistent massing and maximize utilization of campus land. Lower heights should be placed at the edge of campus to respond to neighborhood context, while higher massing should be located at the interior of campus. Sun and wind patterns should be considered when placing higher buildings on campus.

Building Orientation

Buildings should assume an east-west orientation, where possible, to minimize energy load on buildings, and create opportunities to employ passive solar collection and storage strategies. In some instances, buildings can be oriented north-south to achieve placemaking objectives, such as creating a street wall or defining an outdoor space, but should otherwise be avoided. In these instances, east-west facades should be designed to minimize excessive solar heat gain through shading devices.
Facades and Fenestrations

Facade composition and articulation should be restrained, balanced, maintain a human scale, and function as an expression of programmatic elements within the building.

No more than a third of the façade length should be recessed or brought forward from the main plane of the façade. These variations should not project more than twelve feet from the main façade alignment and should be used to mark special façade elements and articulate building entrances.

All facades should incorporate horizontal divisions that highlight a well defined base, a mid-section that encompasses the majority of the façade, and a top where the building façade terminates. The level of expression of the horizontal divisions may vary to respond to adjacent open space, the level of public uses within the building, and the height of the building itself.

The vertical structure of the building should be expressed in the façade and openings. Windows should be regularly arranged along the façade and aligned on a vertical axis. Windows should be grouped to express program, create larger elements on facades, and decrease the scale of buildings, while the use of strip or ribbon windows and dark or reflective glass should be prohibited to encourage transparency.

Façade treatments should respond to the solar orientation of the building. North-facing facades, for example, should contain less glass due to heat loss, while east and especially west-facing facades should use louvers or shading devices to mitigate direct sunlight. In general, buildings should follow performance based requirements, such as LEED, for building skin and windows.

Ground Level Treatment

The ground floors of buildings should contain the most active and public uses. Transparent materials should provide visual access to these areas, and be employed along south facing elevations. Southern facades capture direct sunlight and tend to be where people walk and gather when it is otherwise too cold or windy in the shade.

When facing a public plaza or central open space, the ground floor should be located at the plaza level to emphasize the physical and visual connection between the interior and exterior of the building, and contain inviting uses.

Materials and Color

Primary material for campus buildings should be natural in color and texture like brick walls and stone, where appropriate, with metal roofs.
Building Entrances

Building entrances should be aligned with outdoor paths, and reflect the unique or memorable qualities of the building uses. Entrances should create fluid connections between interior rooms and exterior spaces, and provide both physical and visual access to buildings through transparent materials and clarified circulation. Building entries should be defined by building massing, roof, and façade articulation and contain canopies and overhangs for climate protection. Entrances should be limited along north facing conditions where ice will form unless design properly addresses these safety concerns.

Roof Form

Sloped and flat roofs are appropriate on future buildings. Mansard roofs are not recommended on campus. Cornice lines should be properly expressed, and complement the roof structure. The roof treatment on context buildings should also be considered.

Mechanical Equipment Screening

Mechanical and service equipment should be properly screened and mechanical stacks should be grouped together to minimize audible and visual impediments. Building equipment should be integrated in the roof structure. When flat roofs are employed, mechanical equipment should not be visible from ground level or adjacent buildings.

Historic Significance

The campus is predominantly of the modern era; however, there are several buildings that are of historic significance, particularly in the eastern portion of the campus. For buildings planned within historic districts or adjacent to historically significant structures, the Master Plan recommends a coherent, complementary, and contextual integration of building design and landscape. Renovation of these structures should be conducted sensitively and should respect the integrity of the buildings by planning for low-impact space types, such as classrooms and offices. Future renovations should also consider improvements to social space, including student lounge and meeting space. Infill buildings within should respect the scale, proportion, window to wall ratio and detail of existing historic buildings.
LANDSCAPE GUIDELINES

Campus landscape design guidelines provide fundamental organizing ideas and concepts for the campus landscape. While the guidelines offer sufficient detail for the design of the campus open spaces, they establish a design direction rather than prescribing definitive design solutions. The following guidance promotes “working landscapes” that embrace, integrate, and embody design, environmental and academic values. The working landscape responds to the climate and natural conditions of the site, working with its features to maximize their functional qualities. The guidelines also seek to achieve a comprehensive campus landscape design that is sustainable and environmentally responsible, economical and practical to maintain, responds to climate and natural conditions of the site, and establishes an integrated environment that enriches the campus experience.

The landscape design guidelines that follow provide a more detailed design direction for the various landscapes on the campus. The goal of the design guidance is to create landscapes with clear, identifiable characteristics that make them distinctive parts of an overall landscape fabric. The guidelines are broken down into three areas that collectively capture the campus landscape, and include:

- Landscape Elements
- Landscape and Plantings
- Paving, Furnishings and Lighting
LANDSCAPE ELEMENTS

Landscape elements on campus consist of campus entrances or gateways, pedestrian corridors, key gathering areas and parking lots. Each of these elements has a specific landscape language that contributes to the larger comprehensive campus aesthetic and is described in detail.

Campus Roads and Pedestrian Corridors
Throughout the campus, street trees will be planted along both sides of all roads and pedestrian corridors to provide shade, a sense of scale, and visual consistency. A continuous shade canopy of deciduous trees will improve pedestrian comfort in warmer months and allow for solar gain in colder months.

Entry Courtyards
Smaller scale courtyards at the entrance to each academic cluster are intended to be intimate, inviting outdoor living spaces suitable for (small) classes or gatherings, or a place to read or study. These entry courts will be planted with shade and/or ornamental trees in a formal arrangement. Decorative paving, special lighting, seat walls, moveable furnishings, benches and other elements will enhance the identity of these outdoor spaces.

Englemann Quad
The passive recreation quad proposed south of Englemann will be rimmed with trees to separate it from the pedestrian corridors on the north, but overall, a sense of openness will be maintained on-site. The field will be planted with turf grass.

Historic Landscapes
Historic landscapes are those associated with the major contributing buildings of the campus, located primarily on the east side of campus. These areas will be enhanced and protected in a manner respectful of the existing character.

Downer Woods
As a protected landscape, Downer Woods will be maintained as a campus resource and symbolically expand southward to link with Hartford Avenue. The intent is to create a unified landscape expression. Specifically, tree planting will be combined with groundcovers and grass clearings outside the area of the woods protected by legislation (see diagram below) to create both wooded and passive recreation areas.

Climate Protection (Sun, Wind and Rain)
The guiding principle for all plantings on campus is to respond to the local climate conditions and create an open space framework that provides a sequence of attractive and comfortable spaces, a network of shade and general comfort zones protected from wind, sun and rain.

Along sidewalks and main pedestrian corridors, dense allees of canopy trees are proposed to provide shade in the summer and block wind in the winter, as well as convey a sense of scale and visual consistency.

In campus open spaces, such as campus quadrangles, informal groupings of canopy, evergreen and flowering trees are proposed to provide shade, a sense of scale, and visual interest, and define spaces where people can gather and rest outdoors.

Spatial Definition
Together with buildings and topography, planting is a primary means of defining the scale and character of the campus landscape. Trees are the primary factors responsible for the overall open space organization of the campus. Trees and shrubs establish the limits of views and the structure of outdoor spaces and, in a fundamental way, define the shape, size, sequence and hierarchy of outdoor spaces. The space-defining role of plants should precede the thinking about specific plant characteristics such as flower, leaf texture or branching habit and should precede the thinking about adding horticultural interest and color to the landscape. Trees and shrubs are selected to achieve desired functions and provide spatial definition. They are also essential in making the campus livable in terms of shade and wind protection.

This approach recognizes that the overall spatial order and quality of campus spaces is a principle concern of campus design.

Even though roads and pathways play an important function, the three-dimensional presence and strength of buildings, topographic form, trees and shrubs primarily determine the organization of the campus landscape.
Scale

Size and composition of tree groups, shrub masses and, where appropriate, plant beds should be designed at a scale that is proportionate to their relationship with campus buildings and their landscape context and consistent with regulations set forth by campus security, including roads and open spaces. In most campus open spaces, bold, simple plantings should be employed that are scaled with respect to their surrounding and the larger campus landscape, particularly when adjacent to institutional size buildings and in large lawns and green open spaces of the campus.

More intricate, garden scale plantings are appropriate and encouraged in smaller spaces, courtyards, and entry courts, that are well defined by buildings, walls or other structures. The garden designs, too, should be kept simple and geometric to be consistent with the order of framing buildings and walls.

It is also recommended that small scale annual flower plantings be accommodated, where possible, in planters and large pots rather than in beds in the ground. This method of flower display will be more efficient to install and maintain than bedded plants, and will be more flexible in terms of design.

Plant Suitability & Character

The majority of plants on campus should be selected for hardiness, longevity, general ease of maintenance, freedom from diseases and pests, and ornamental quality. Plant species used should be sufficiently diverse to maintain resilience to known and unforeseen disease or climatic stress that may target a specific species. Plant diversity should not, however, be exaggerated at the expense of visual unity and continuity.

Ideally, plants should be native to the Upper Midwest bioregion. Non-native plants that are used on campus should be non invasive and should present no threat to native flora. They should also have low water requirements, and generally share the visual traits that characterize the dominant regional flora. Plants whose visual appearance diverges or is significantly different from the native flora should generally not be used on campus. The overall purpose of the planting design should be to capitalize on the inher-
For both formal and more naturalistic planting arrangements, it is recommended that plants be organized in groups composed of single species or multiple species that share a high degree of visual similarity. Groups of similar plants will visually tie the campus together.

**Lawn**

Lawns should be limited due to their considerable water requirements. The new Englemann Field should be planted with drought-tolerant grasses to reduce water consumption.

**Shrubs**

With the exception of hedges, shrubs should be planted in arrangements that allow for their natural shape to be retained, and allow adequate space for them to develop to their natural size either as an individual plant or in shrub masses.

**Trees**

New trees should be planted in sizes that are large enough to have an immediate affect on the quality of the landscape. Tree pruning should be started early in the life of all campus trees to encourage the establishment of a storm resistant branch structure. Tree canopies in lawn areas should be established at a sufficient height to provide clear visibility beneath the trees and to allow adequate light to the lawn areas.

**Planting Character**

In general, the character of campus plantings should be a combination of formal and more naturalistic planting patterns to be able to work with and address a variety of open space typologies, and to establish a hierarchy of campus open spaces.

Formal planting arrangements such as groves and allees planted with single species will help define and structure core open spaces and pedestrian connections on campus. Informal planting patterns are highly suitable for most other campus spaces as they allow for a greater variety of species and ages of plants while maintaining an overall sense of completeness and order.

Aside from tree groves and pedestrian allees, formal plantings include rows of street trees and parking lot plantings, and more formal gathering spaces in the academic core.

**PAVING, FURNISHINGS AND LIGHTING**

**Paving**

The Master Plan illustrates the general pattern of proposed roads, walkways and paths for the campus.

Paving recommendations for campus roads and pedestrian paths are as follows:

**Roadways**

The standard material for campus roads shall be asphalt paving with a pre-cast concrete curb system and cast-in-place concrete sidewalks with light broom finish where applicable.

**Pedestrian Pathways**

Standard pavement for the campus walkways for both the east-west and north-south corridors shall be cast-in-place concrete with a light broom finish. Pavers can be included to provide edge definition and horizontal modulation.

**Plazas**

Campus plazas, entry courts, courtyards and gathering spaces adjacent to buildings shall employ richer pavement materials, including colored and exposed aggregate concrete, unit pavers, tile, and brick paving to create a more interesting and diverse surface in these locations.

These pavements should be selected in dialogue with adjacent building materials and flooring to be compatible and ensure a fluid inside/outside connection where appropriate.

**Furnishings**

Specific site furnishings should be selected for use campus-wide. The overall goal for all site furnishings is to create a ‘family’ of site furnishings that are compatible in style and consistent in material and color.

The preferred color for all site furnishings is silver or black (galvanized or stainless steel with powder coated finish).

**Benches, Tables and Seats**

Movable tables and seats should be located in a variety of settings to allow a choice of scenery and social settings. Within the core areas, movable chairs and tables are recommended as the primary means of providing seating for informal gatherings, outdoor eating, studying and socializing.

In addition to movable tables and chairs, benches should be used along pedestrian pathways, in courtyards and gathering spaces, near building entrances, including vestibules, arcades, porches and other covered spaces.

**Stone Benches and Seat Walls**

Within the academic core or residential areas, stone or colored concrete benches or seat walls can be used to provide seating in or around courtyards, gathering spaces adjacent to buildings, and along main pedestrian pathways. Benches and seat walls shall be compatible in material, pattern and color with immediately adjacent buildings. Capstones should be local stone or precast concrete. Seat walls and stone benches should be set level.

Integrated lighting in both walls or benches should be considered to accentuate certain areas.

**Litter and Ash Receptacles**

The same litter and ash receptacle should be used throughout the entire campus to ensure visual continuity. The University should consider introducing one post-mountable and one ground-mounted trash receptacle across campus that fits both the historic and new campus districts.

The receptacles should ideally be metal with a powder coated finish, matching the color chosen for other site furnishings.

**Bicycle Racks**

In all campus areas, the University should strive for consistency in style and color of bicycle racks. Bicycle racks should be reduced to one movable and one ground-mounted style across the entire campus. Bicycle racks should be suitable for urban riders.

The bike racks should preferably be stainless steel with a powder coated finish, matching the color of other site furnishings.
**Lighting**

All site lighting on campus should be ‘dark sky’ friendly and avoid light pollution (spill and glare) to the greatest extent possible.

The overall goal for the site lighting is to establish a ‘family’ of light fixtures that are compatible or similar in style and consistent in material and color. The preferred color for all site furnishings is silver or black (galvanized stainless steel with powder coated finish), matching the color of other site furnishings.

**Pole Light Fixtures**

For all pedestrian areas of the campus, Campus Quadrangles, Campus Parks, Gateways and all pedestrian walkways, the standard fixture shall be a simple, elegant pole top light with a cut-off fixture.

The fixtures shall be mounted at a consistent height throughout the campus, ideally on a 14-foot high straight, round and tapered galvanized steel pole with powder coated finish. Poles shall be anchored on a concrete pad or footing set flush or preferably below finished grade to allow for a continuous paving or groundcover surface.

**Accent Lights**

For Campus Gateways and Quadrangles, courtyards and ‘gathering spaces’ adjacent to buildings, additional column or bollard lights, or lights integrated in benches or seat walls may be added to accentuate these areas.

**Parking and Street Lights**

Parking lot and street light fixtures shall be a simple, elegant pole top light with a cut-off fixture.

The fixtures shall be mounted at a consistent height throughout the campus, ideally on a 20-foot high pole.

Poles shall be straight, round and tapered galvanized steel poles with powder coated finish, anchored on a concrete pad or footing set flush or preferably below finished grade to allow for a continuous paving or groundcover surface.

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**Preferred Site Furnishings**

- **Current Bicycle Parking**
- **Receptacle**
- **Lighting**
- **Seating**
OPPORTUNITY SITES
Innovation Park
Riverview
University Services and Research Building
Harbor
Plankinton
The Brewery
Cambridge Commons
Lincoln Park
OPPORTUNITY SITES

UWM’s academic and research mission is driving the need for new types of academic, research, campus life and support facilities. At the same time, there are significant space deficits for existing activities. The Master Plan provides recommendations for transforming the Kenwood Campus and east side landholdings to address these needs. However, as has been demonstrated in the Master Plan, there are limitations on what can be accommodated on the landlocked Kenwood Campus and at UWM’s current East Side locations, especially for facilities that require large areas of land for practical needs such as athletic fields and parking.
In addition to the above noted practical needs, there are strategic objectives associated with the research, community engagement and economic mission, which some members of the University community believe would best be located adjacent to existing and emerging private sector and institutional partners. To that end, several Opportunity Sites were identified prior to commencing the Master Plan. Notably, the County Grounds at Wauwatosa was being considered as a location for academic and research activities in engineering that could be aligned with the endeavors of the adjacent Milwaukee Regional Medical Center which includes the Medical College of Wisconsin among other potential partners. A location in the downtown Brewery District (former Pabst Brewery) was also under consideration as a potential home for the new School of Public Health. These proposals were the source of considerable debate during the planning process. Many members of the UWM community believe that proximity to private sector and institutional partners is less important than proximity to their fellow academic and research colleagues on the Kenwood Campus. To this group, the former Columbia St. Mary’s hospital site, located directly north of the Kenwood Campus, looked to be an appropriate location for academic and research expansion.

Given the continued debate on these strategic moves, the Master Plan includes a number of Opportunity Sites that could potentially accommodate the practical needs of the University as well as provide options for addressing the strategic academic and research objectives. Discussions regarding the ultimate plans for sites such as the Brewery, Innovation Park, and Columbia St. Mary’s was still ongoing at the conclusion of the Master Plan process.

The sites documented herein include those initially under consideration by the University prior to commencing the Master Plan as well additional sites identified during the planning process. By providing information on each, the intent is to establish a framework for accommodating future program needs in a variety of ways and in response to opportunities that may arise as the acquisition and partnership agreements are resolved. The decision to utilize any of the sites will be the subject of continued discussion in the campus community and will be subject to evolving strategic and practical objectives as well as financial, partnership and programmatic considerations.

UWM’s academic and research mission is driving the need for new types of academic, research, campus life and support facilities. At the same time, there are significant space deficits for existing activities.

The Opportunity Sites addressed in the Master Plan include:

**The Harbor**—located in the Fifth Ward of Milwaukee on the Kinnickinnic / Milwaukee Rivers, the Harbor site is the current home of the Great Lakes Research Facility (GLRF) and the University’s research vessel. The surrounding context presents significant opportunities for regeneration and redevelopment for activities associated with the new School of Freshwater Science as well as private sector or institutional partners interested in locating adjacent to the new school.

**The Brewery**—the former Pabst Brewery site in downtown Milwaukee has been master planned by a private developer who has offered an existing historic building to UWM.

**Innovation Park**—the County Grounds in Wauwatosa has been identified as a location for UWM research and academic activities that would benefit from proximity to potential institutional partners at the Milwaukee Regional Medical Center. The UWM Foundation is currently engaged in comprehensive planning for the Innovation Park site.

**Columbia St. Mary’s**—the existing CSM site and buildings located directly adjacent to the Kenwood Campus are being vacated by the hospital and potentially will be available for UWM expansion.

**Lincoln Park**—currently the location of the UWM baseball facilities, Lincoln Park has been identified as a potential expansion location for a UWM athletics district.

This section of the report provides a site description, rationale for UWM presence, vision and goals for development, program fit and research partnerships, accessibility, feasibility and implementation, financial considerations and general design guidance for each one of the Opportunity Sites.
OPPORTUNITY SITES

WAUWATOSA COUNTY GROUNDS
**THE HARBOR**

The creation of the new School of Freshwater Sciences (SFS) presents an opportunity for the University to be a leader in the international, national and regional push for increased focus on the health of the Great Lakes and on development of water-based industries. The School is being created at a time when water manufacturing and research strengths are expanding in the Milwaukee region; over 120 water-related companies are located in southeastern Wisconsin, and five of the top ten national companies who focus on water products are located in the area.

The existing Greenfield Avenue site, and parcels surrounding, is a growth opportunity for UWM. The site, located at 600 East Greenfield Avenue in Milwaukee’s Fifth Ward, just east of First Street, is approximately two miles from the center of downtown Milwaukee and five miles from UWM’s Kenwood campus. The existing Great Lakes Research Facility sits on 6.375 acres that are owned by the State. The site has water frontage to the east on the Kinnickinnic River in Milwaukee’s Inner Harbor, and is bordered to the north by a 1,250’ long boat slip, to the west by a railroad right-of-way owned by the Chicago and Northwestern Railway System, and to the south by Greenfield Avenue.

Neighboring the site, across the slip to the north, is a tank farm owned by Construction Resources of Waukesha, and across Greenfield to the south is a coal transfer site owned by the City of Milwaukee and leased to a coal handling company which serves We Energies’ Menomonee Valley power plant.

The Great Lakes Research Facility occupies an existing building on the site that was constructed by the Allen Bradley Company in 1965 as a ceramic tile factory. The three-story 130,000 gross square foot facility is located on the east end of the property with frontage along the boat slip. The State took ownership of the building in 1973 and performed renovations immediately after taking occupancy (and over time) to create research laboratory space within the building. Office and storage spaces are used primarily in the configurations that were left by the previous owner.

**Rationale**

GLRF and the new School of Freshwater Science require access to Lake Michigan. The essential value of the existing GLRF site is its protected riverfront location, the docking facilities, and convenient access to Lake Michigan - a condition that would be difficult to replicate elsewhere in the near term. The new School requires expanded facilities in the next three to five years and the GLRF site is immediately available.

**Vision and Goals**

The vision for the Harbor Campus is to house the new School of Freshwater Science in a state-of-the-art facility, which could act as an anchor for a new science district that is created in partnership with the City, adjacent landowners, and the business community. Located along the Kinnickinnic River, the district could serve as a catalyst for urban regeneration in the Fifth Ward with water, energy and advanced manufacturing being the focus. There is also potential for connection to amenities and housing within the Third Ward, reinforcing the success of this adjacent historic district.

In the long term, a vision exists to develop the existing GLRF location and surrounding parcels into a Harbor Campus that would provide more comprehensive services and facilities for its users.

To fulfill UWM's mission, the School of Freshwater Science also has plans to include an outreach component in the future facility, which could be co-located with the educational and research center proposed for the GLRF site. This center would provide a public face for the School of Freshwater Science, offering visitors the opportunity to learn about the School and its activities.

**Anticipated Population**

**Short-term (approx 5 years)**

<table>
<thead>
<tr>
<th>GSF</th>
<th>FACULTY</th>
<th>POST DOC/ VISITING</th>
<th>STAFF</th>
<th>GRADS/ RA</th>
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**Mid-term (approx 10 years)**

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**Long-term (approx 20 years)**

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</table>

Note: population counts are cumulative.
Program Fit, Research, Partnerships

The pre-design process for the new SFS facility has indicated a projected need for approximately 85,000 gsf for an initial Phase I addition to the existing building. This is above and beyond the space provided in the existing facility. The program identified for the School of Freshwater Sciences includes space for research labs, teaching labs, classrooms, shared core facilities, collaboration and team science, and office spaces. Future program projections indicate a need for additional facilities and growth beyond the existing footprint of the site. Therefore, opportunities to expand to the west or south of the current site may be explored.

SFS intends to expand existing research areas and develop new research strengths. Five research themes have been identified that would have the best synergy at a Harbor Campus location. The synergy between the five research themes develops a rich interdisciplinary community:

- Climate and Forecasting
- Environmental Health
- Ecosystem Management
- Integrated Technologies & Engineering
- Economics Policy & Management

In the context surrounding the GLRF site, collaboration and research partnership opportunities exist on parcels north and south of Greenfield Avenue as it extends westward to First Avenue. In addition, the Rockwell Automation Building, located at First and Greenfield, may offer space for partnership. Combined, these existing and proposed buildings could accommodate water-related research collaboration, business, and industry, establishing a Harbor Campus district. Other sites include those located further north of the existing GLRF site along the Milwaukee River. Redevelopment of the Greenfield Avenue context will require partnerships with the City and landowners to provide public realm improvements, environmental clean-up and new infrastructure. Given the nature of the program, regeneration of the area provides an excellent opportunity to demonstrate best management practices in sustainable urban regeneration and economic development.
Accessibility
The GLRF site is located on a relatively peripheral and remote site and has limited visibility from regional roads. Current access is primarily vehicular, although bus transit does extend to the site from both Kenwood and downtown via the Route 15 bus. In the long-term, one of the city’s planned north/south transit corridors would run along First Avenue, thereby providing efficient and direct transit access to the site. In the short-term, however, UWM should continue its shuttle service to the site. Because of the distance from Kenwood and lower ridership due to a relatively small population of 235-343 people, shuttle headways will likely be less frequent. Logistically, UWM should aim to limit the need for students and faculty travel to and from Kenwood through scheduling and by other strategies.

Feasibility and Implementation
Infrastructure
Existing infrastructure on the site is in place as are roads; however, streetscape improvements are required. As noted, the potential for urban regeneration in the surrounding context would require partnerships between the University, the city, private landowners, and businesses to carry out necessary improvements.

Financial
The pre-design process for the facility will need to consider the anticipated GLRF population and the level of support spaces that can be feasibly provided. While some study and library space may be needed, as well as small-scale food service, many student services, such as advising and scheduling, will remain at Kenwood. Other services, such as record-keeping, can be done virtually.

Aside from the cost of expanding the current GLRF facility, there are also potential costs for infrastructure extension and environmental clean-up, which may be eligible for DOC grants. There will also be some additional costs associated with transportation, particularly if the University elects to provide shuttle service until such time that a viable transit corridor is established as proposed on nearby First Avenue. In the short-term, auto access will be critical and adequate space exists for surface lots to meet the parking demand. As the district undergoes development, however, the University may wish to provide structured parking in association with private sector partners that may locate in the surrounding context.
Design Guidelines
The exact nature of uses and facility expansion at the Harbor will be the subject of future architectural and master planning studies for the existing GLRF site as well as the surrounding district. The following guidelines for the GLRF site are provided as the basis for the development of more detailed guidance that will be the outcome of future design phases.

Architectural Expression
Future buildings on the GLRF site should be contemporary and express the nature of the academic and research activities defined by the mission of the new School of Freshwater Science. They should be high performance buildings and an expression of sustainable practices for urban rainwater harvesting and stormwater management.

Building Placement
The placement of new buildings should respond to the existing building on the GLRF site, the urban street grid, and views of the river. Future buildings or additions should be placed to achieve maximum use of the site area and to improve the quality of the streetscape as well as establish a positive image for the new School of Freshwater Science.

Building Orientation
Buildings should assume an east-west orientation, where possible, to create opportunities for passive or active solar strategies. In some instances, buildings may need to be oriented north-south due to site configuration, program requirements or other reasons such as creating a street wall or defining an outdoor space. In these instances, the east and west facades should include shading devices and landscape strategies to minimize any adverse heat gain or glare issues within the buildings.

Building Setbacks and Build-To Lines
Proposed additions to the GLRF building should be set back from the street to allow for generous sidewalks, landscape treatment, and a limited but well designed parking area featuring sustainable stormwater management strategies. Buildings should be situated in a manner that balances security, while maintaining an open and welcoming atmosphere.

Building Form and Massing
Buildings should be simple in geometry. Uninterrupted façade lengths should not exceed 125 to 150-feet to ensure a pedestrian scale to buildings. Public functions, such as the main entrance, should be located on the south or east façade of the building.

Building Heights and Roof Form
Building heights should be a minimum of two floors on the GLRF site to maximize use of the land. Roofs can be low-slope (flat) or sloped depending on programmatic needs and desired expression. Green roofs and rainwater harvesting systems are encouraged and, therefore, will influence the design of the roofs. Natural daylighting of the facilities and the installation of thermal or photovoltaic solar demonstration projects are also encouraged to the degree they are compatible with research activities. This too will influence roof design on proposed structures.

Façades and Fenestrations
Façade composition and articulation should be restrained, balanced, and function as an expression of programmatic elements within the building. A new façade should be considered for the existing GLRF facility to better align it with new development, as well as to provide a new “face” for the School of Freshwater Science.

Façade treatments should respond to the solar orientation of the building. North-facing facades, for example, should contain less glass due to heat loss, while east and especially west-facing facades should use louvers or shading devices to mitigate direct sunlight. In general, buildings should follow performance based requirements, such as LEED, for building skin and windows.

Ground Level Treatment
The ground floor of future buildings should contain the most active and public uses. The aim should be to provide an attractive and inviting public face for the School of Freshwater Science. Views to the research vessel and surrounding river context should be considered.
Building Entrances
The building entrance should be aligned with outdoor paths, and reflect the unique or memorable qualities of the functional uses. Entrances should create fluid connections between interior rooms and exterior spaces, and provide both physical and visual access to buildings through transparent materials and clarified circulation. Building entries should be defined by building massing, roof, and façade articulation and contain canopies and overhangs for climate protection. Entrances and access points should be limited along the north facade where ice will form unless design properly addresses these safety concerns.

Service and Delivery Areas
Loading docks and service areas should be visually screened from view by walls / fences of a minimum of six (6) feet in height. The walls/fences should be designed to complement the primary building materials utilized. Where such areas are visible from pedestrian or vehicular circulation routes, they are to incorporate gates to screen all equipment and loading docks.

Mechanical Equipment
Mechanical and service equipment should be properly screened and mechanical stacks should be grouped together to minimize audible and visual impediments. Building equipment should be integrated in the roof structure and coordinated with strategies for rainwater harvesting, green roofs and daylighting concepts. When flat roofs are employed, mechanical equipment should not be visible from ground level or adjacent buildings, unless designed as feature elements and as an expression of the technical aspects of the building.

Urban Landscape and Stormwater Management
Given the mission of the School of Freshwater Sciences, the proposed water-related activities at the Harbor and the riverfront setting, rainwater harvesting, green roofs, bioswales and other stormwater best management practices outlined in the sustainability chapter of this report are recommended for the GLRF site. Extending beyond the GLRF site, it is recommended that a district-wide approach to urban stormwater management be explored in future planning, design and engineering processes; an approach that demonstrates the best practices for urban stormwater management appropriate for the climate and soil conclusions. The intent is to create an urban version of the “working landscape” concept where landscape features are functional in terms of water management, shade and wind protection. Impervious surfaces should be kept to a minimum and, where possible, permeable paving should be considered as an option, soil conditions permitting.

Signage and Wayfinding
A comprehensive signage system is recommended for the Harbor to reinforce a sense of place and UWM identity.
THE BREWERY

The Brewery site is located on over 20 acres of land in downtown Milwaukee, immediately east of Interstate 43 and along an important gateway into downtown. The site currently contains several vacant sites and over 26 buildings, many of which are historic, for a total of 1.2 million existing square feet of space. The Brewery is approximately 3.3 miles from the Kenwood campus, or 10 minutes driving time. A master plan, envisioning a future district of institutional, residential and commercial uses, has been developed for the Brewery by the owners.

At this writing, the Brewery was being considered as the downtown location for the UWM Health Campus, accommodating the public, community, and clinical health functions of Nursing, Public Health and Social Welfare. Specifically, Building 29, part of the former Pabst Brewery, was being considered as a potential location for UWM programs.

Rationale

The Brewery site provides immediate opportunities for development as well as opportunities for future expansion. The location is close to the downtown core as well as nearby residential areas of the city, and provides accessible amenities such as parking facilities, dining, and retail. The significant outreach programs provide the opportunity to participate in the redevelopment of part of the City appropriate for the School of Public Health. Other supporting reasons identified for this location include the proximity to Aurora Sinai Medical Center, Milwaukee Area Technical College (MATC) and numerous government agencies, institutions, and businesses, including the Milwaukee Health Department. Perhaps the most significant reason for a downtown location is to serve UWM’s mission of access and outreach by distributing University programs in the City. The Master Plan addresses this goal of establishing a critical mass of activity and presence in downtown Milwaukee, which can be accomplished through the presence of programs identified in this document along with the potential future co-location of clinical programs in Education and Psychology. Additionally, specific to the Brewery site, a Higher Education Collaborative could be created by forming partnerships with MATC, the Milwaukee School of Engineering (MSOE), Cardinal Stritch and other area colleges and universities.

Vision and Goals

The vision for the Brewery is to create a health presence for University-wide programs within a potentially vibrant, urban district in downtown Milwaukee. The location will be comprised of public, community, and clinical health programs. Combined, these programs will serve UWM’s access and outreach mission by distributing University programs in the City. By collocating programs, UWM can establish a critical mass of activity and identity in the downtown area. Clinical programs from Education, Psychology, and Social Welfare could also be located at the Brewery with the undergraduate portions of each remaining at Kenwood.

A presence at the Brewery will require UWM to be an active participant in urban regeneration, furthering the goals of the institution, the city, and the state of Wisconsin. As a downtown constituent, UWM must be concerned with and involved in the development that occurs around the proposed location. By reutilizing a historic building, combined with new development, UWM can serve as a link to Milwaukee’s past and future.

Program Fit

The Brewery site provides opportunities for accommodating the needs of a Health Campus through a combination of adaptive reuse and new construction on available parcels, the details of which will be the subject of future studies. The existing Building 29 site offers approximately 200,000 gross square feet (gsf) space. The pre-design process projected a need of approximately 96,000 GSF in an initial phase, with an outlook toward a total program of 217,000 GSF. The potential of locating in an existing historic building such as Building 29 provides some opportunities and some challenges. The site provides visibility and opportunities for collaboration, as well as an existing core and shell. However, there are programmatic fit challenges with a dense existing column grid, floor-to-floor heights, and window layouts. Over the long term, the building offers expansion potential. The site will also require adequate parking and accessible amenities, such as dining and retail.

Research and Partnerships

The Brewery site provides great potential for partnership opportunities. Centrally positioned between the Aurora Sinai Medical Center to the west and MATC and MSOE to the east, the Brewery provides opportunities for both academic program and research collaboration. Other institutions such as Cardinal Stritch have also expressed desire or are planning a presence in the Brewery district.

Anticipated Population

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<th>Short-term (approx 5 years)</th>
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<td>GSF FACULTY POST DOC/ VISITING STAFF GRADS/ RA CLINICAL VISITOR TOTAL POPULATION</td>
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<tr>
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<th>Long-term (approx 20 years)</th>
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Note: population counts are cumulative
A downtown location also provides the opportunity to collaborate with surrounding government agencies, as well as other downtown institutions and businesses. An urban location affords the best opportunity to meet and serve the UWM access and outreach mission.

The pre-design study for this location suggested several research themes that could find a home at the Brewery site. These include: Environmental and Occupational Health, Health Informatics, Community and Behavioral Health Promotion, Epidemiology and Biostatistics, and Policy, Administration and Health Services.

### Accessibility

The Brewery site is located approximately three miles from the Kenwood campus and is accessible from the freeway, city street system, and public transportation. Located just east of Interstate 43, the primary north-south corridor through Milwaukee, the Brewery is visible to over 200,000 vehicles per day. The site is connected to Milwaukee’s urban core via the street grid system, providing direct access for both vehicles and pedestrians.

The site is currently served by the MCTS bus system; however, plans to strengthen Milwaukee transit could improve service frequency. The proposed north/south transit corridor through the city and an associated streetcar loop will provide enhanced access to the Brewery. As a key constituent and user of this enhanced transit service, UWM will need to coordinate with transit officials and advocate for preferred routes and levels of service. Until such time that these improvements are made, UWM could expand its existing East Side shuttle system to provide a comprehensive transit option serving Kenwood, Riverview, Kenilworth, and the Brewery. Because of the Brewery’s proximity to the East Side, a University-controlled system could be utilized to maintain relatively short travel times and headways, thereby maximizing efficiency and ridership. Please see the transportation chapter of this report for more details.
Feasibility and Implementation

Infrastructure

Due to its urban location, infrastructure for the Brewery is largely in place, with recent improvements completed to expand the capacity for new development. Many of the roads exist as well, with streetscape improvements already underway.

Financial

Due to the critical mass of students, faculty, and staff who will be located at the Brewery, student services and amenities need to be provided. Duplication of some student amenities, such as retail, restaurants and housing, can be minimized through partnerships with the private sector. In the short-term, the pre-design process for these facilities should consider the anticipated student population and provide appropriate support spaces, such as small-scale food service and potentially library/study space.

There will also be some additional costs associated with an expanded shuttle service. The University will need to negotiate for, and potentially lease, space in the centralized parking structures that are part of the Brewery master plan, as parking will be important to serve the clinical activities.

Feasibility and Timing

Building 29 and the supporting infrastructure are immediately available, allowing UWM to move forward as soon as funding is in place. However, substantial work is needed to make the building ready for occupancy. The University will need to work with the Brewery administration to influence the pace and quality of development with the aim of establishing a vibrant mixed-use district. The presence of UWM will provide value and stability to the area that will facilitate the development of support facilities and amenities.

Design Guidelines

The master plan for the Brewery serves as a reference point for design decisions within the district. The following design guidelines pertain to those items that the University may be able to influence, however, UWM would need to coordinate its vision with those of the Brewery master plan. It is noted that the central challenge of the Brewery site will be to complete renovations to Building 29 and other buildings that respect the district’s architectural integrity while, at the same time, accommodating the modern program requirements. While the future of Building 29 will be largely determined in feasibility and architectural planning studies, the following guidelines are provided to ensure that UWM can effectively integrate its facilities into the Brewery district.

Architectural Expression and Historic Significance

The master plan recommends a coherent, complementary, and contextual integration of building design and streetscape with the historically significant structures of the Brewery district. Renovation of structures such as Building 29 should be conducted sensitively. While the integrity of the building should be preserved, contemporary design expressions and materials are encouraged to provide a distinctive address for UWM and express programmatic requirements.

Roof Form

The extensive roof area of Building 29 provides the opportunity to explore natural daylighting strategies (especially at the center of the building) or incorporate thermal or photovoltaic solar demonstration projects. The incorporation of such features is encouraged to the degree they are compatible with the programmatic requirements and renovation budgets.

Facades and Fenestrations

The fenestration pattern of Building 29 should be maintained; solid infill of windows should be avoided if possible. The aim is to preserve the natural daylighting in interior spaces. New windows should be compatible with the original design intent of the building, avoiding, in general, the use of reflective or bronze colored glass that would limit opportunities to view the activities within the building.

Ground Level Treatment

The ground floor of Building 29 should contain the most active and public uses and be made as visible as possible while respecting the historic character of the building. Transparent materials should provide visual access to these areas.

Materials and Color

Brick is the primary material on Building 29 which should be cleaned, repaired and re-pointed as necessary. Historic architectural features and details should be restored. New materials should be selected to complement the original color and texture of the brick and other original materials.

Service Access

Service areas should not be located near building entrances or public gathering areas. They should be properly screened by walls at least six (6) feet in height. The walls/fences should be designed to complement the primary building materials utilized. Where such areas are visible from pedestrian or vehicular circulation routes, they are to incorporate gates to screen all equipment and loading docks. Given the size of Building 29, it may be possible to incorporate the service and loading areas within the footprint of the building.

Mechanical Equipment Screening

Mechanical and service equipment should be properly screened and mechanical stacks should be grouped together to minimize audible and visual impediments. Building equipment should be integrated in the roof structure and should not be visible from ground level. Exhaust vents should not be located on the facades of the building unless they are incorporated in a manner that complements the brick or fenestration pattern of the building.

Signage and Wayfinding

A comprehensive signage system is recommended for the Brewery to reinforce a sense of place and UWM identity.
INNOVATION PARK

Innovation Park is a proposed 87-acre research park to be developed by the UWM Real Estate Foundation. A detailed master plan for Innovation Park is currently being drafted and is anticipated to be completed in 2010. The proposed site is located approximately 12 miles west of the Kenwood campus on land known historically as the Milwaukee County Grounds. The development site is bounded by Swan Boulevard to the north and west, Watertown Plank Road to the south and adjoined on the east by a WE Energies power plant. Access from I-41/45 is easy and the area is served by the Milwaukee County Transit System. The development site is adjacent to a preserve to the northeast and a future Milwaukee County Park to the east. This piece of real estate is one of the last and largest parcels of undeveloped contiguous land in the County.

The site is predominantly undeveloped, with the exception of six existing buildings occupying the far north and south edges. The Milwaukee County Parks Department currently occupies an existing building located on the southern portion of the site. Five unoccupied buildings are located on the northern portion of the site. The re-use of these historic buildings is a part of the Innovation Park master plan.

The initial phase of the Innovation Park development is expected to be on the southern portion of the site closest to Watertown Plank Road and the Milwaukee Regional Medical Center.

Rationale

Development at the Innovation Park is intended to foster partnerships and emphasize the critical role of adjacency in forming productive collaboration between UWM programs, private sector businesses and institutions located on the adjacent Milwaukee Regional Medical Center as well as in the western suburbs. By locating adjacent to these institutions, the aim is to establish relevant research clusters and partnership opportunities leading to both academic and translational opportunities.

Vision and Goals

The vision for the Innovation Park is to create a cluster research district that encourages partnership and collaboration with the goal of advancing the significant research goals of the University. By locating close to viable partners, UWM can establish itself as a relevant and active leader in the research growth of the Milwaukee region and state of Wisconsin. The Innovation Park will provide academic and research opportunities primarily for engineering, with the bulk of undergraduate work continuing at the Kenwood campus. Development of the Innovation Park will be directed by the UWM Foundation and will include partners, such as the Medical College of Wisconsin (MCW), the Children’s Research Center, GE Medical, the Milwaukee County Research Park, and the Blood Center.

Program Fit, Research, and Partnerships

With ample land, the Innovation Park offers the long-term capacity to meet future research partnership opportunities related to engineering and advanced science. Potential research themes identified for the Innovation Park include those focused in BioEngineering including BioMechanics, Ergonomics and Imaging; Industrial Innovation; Informatics; and Rehabilitation Science and Technologies. The pre-design process revealed an initial first phase of approximately 166,000 GSF with a future academic and research need exceeding 250,000 GSF, including interdisciplinary research space, flexible teaching labs, and collaborative space. Depending on partnerships and funding, development capacity exists over and above the known space need. The total development capacity for the site is approximately 1,000,000 gsf.

Anticipated Population

### Short-term (approx 5 years)

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### Long-term (approx 20 years)

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<th>GRADS/ RA</th>
<th>CLINICAL VISITOR</th>
<th>TOTAL POPULATION</th>
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</thead>
</table>

Note: population counts are cumulative
Accessibility
The Innovation Park site has good visibility and access from the regional road network. The site is, however, located a considerable distance from both Kenwood and downtown and suggests that individual vehicular travel will be the primary mode of transport to and from the campus at least until a critical mass of population and activity is established. Public transportation services are limited and, due to the distance from Kenwood, a University shuttle system would not be efficient in terms of maintaining headways and ridership in the near term. As the population increases over time, transit may be a viable option. Course offerings and other activities should be scheduled so as to minimize daily back and forth travel between campuses for students and faculty.

Feasibility and Implementation

Infrastructure
The site currently has limited infrastructure resulting in the need to extend new services onto the site including water, sewer, electrical, and telecom. New roadways are also necessary.

Financial
The County Grounds site will be purchased and developed by the UWM Foundation. Cost considerations include the need for infrastructure extensions. There is also a cost associated with providing student services.

Design Guidelines

Architectural Expression and Historic Significance
The architecture of the Innovation Park should be an expression of contemporary sustainable design, revealing the nature of the advanced academic and research activities occurring within the facilities. The buildings should be designed in response to climate and environmental conditions of the site. High-performance buildings that incorporate passive strategies, new technologies, and energy efficient systems are envisioned. This will be essential, since labs are expected to be a major component of the proposed buildings.

The historic County Parks building should be sensitively renovated and repurposed for uses appropriate for the structure, such as offices and meeting / conference spaces. In replacing windows and repairing original materials, emphasis should be placed on protecting the integrity of the original design. Additions to the building to accommodate vertical circulation or other programmatic elements should be designed to complement the original materials, color, and proportions of the building.
Building Orientation
Buildings should assume an east-west orientation to create opportunities for passive and active solar design strategies. In some instances, buildings are oriented north-south to achieve placemaking objectives, such as creating a street wall or defining an outdoor space. In these instances, east-west facades should be designed to minimize excessive solar heat gain through shading devices and landscape strategies. Façade designs for all buildings should be responsive to the orientation with energy efficiency and daylighting being key objectives.

Building Setbacks and Build-To Lines
The general arrangement of buildings should establish a pattern of alignment and defines exterior spaces. As the Innovation Park buildings will be constructed in phases, each building should respond to and anticipate future buildings. Fenestrations, entrances, pedestrian connections (interior and exterior) and service areas should acknowledge the possibility of future buildings.

Building Form and Massing
Buildings should be simple in geometry and avoid excessive widths. Uninterrupted façade lengths should not exceed 125 to 150-feet to ensure a pedestrian scale to buildings. The public functions of each building, such as the main entrance, should be highlighted in the composition, but its proportions should be appropriate to the building’s use and scale.

Building Heights
Building heights should be a minimum of 3 to 4 floors to create a consistent massing and efficiently utilize the land resources of the Innovation Park. Building heights on the north end of the site should take into consideration the height of the historic Eschweiler complex of buildings.

Roof Treatment
Roofs should be low slope (flat). Green roofs and solar demonstration (thermal or photovoltaic) are encouraged on all buildings.

Building entrances and ground level treatment
Building entries should be defined by canopies, roofs, or façade articulation and should be located along major pedestrian routes. To ensure an active exterior campus environment evolves, the ground level façade treatment should incorporate transparency, especially where major social or group gathering spaces are possible.

Facades and Fenestrations
Façade composition and articulation should be restrained, balanced, maintain a human scale, and function as an expression of programmatic elements within the building.

No more than a third of the façade length should be recessed or brought forward from the main plane of the façade. These variations should not project more than twelve feet from the main façade alignment and should be used to mark special façade elements and articulate building entrances.

All façades should incorporate horizontal divisions that highlight a well defined base, a mid-section that encompasses the majority of the façade, and a top where the building facade terminates. The level of expression of the horizontal divisions may vary to respond to adjacent open space, the level of public uses within the building, and the height of the building itself.

The vertical structure of the building should be expressed in the façade and openings. Windows should be regularly arranged along the façade and aligned on a vertical axis. Windows should be grouped to express program, create larger elements on facades, and decrease the scale of buildings, while the use of strip or ribbon windows and dark or reflective glass is not recommended.

Facade treatments should respond to the solar orientation of the building. North-facing facades, for example, should contain less glass due to heat loss, while east and especially west-facing facades should use louvers or shading devices to mitigate direct sunlight. In general, buildings should follow performance based requirements, such as LEED, for building skin and windows.

Mechanical Equipment Screening
Mechanical and service equipment should be properly screened and mechanical stacks should be grouped together to minimize audible and visual impediments. Building equipment should be integrated in the roof structure. When flat roofs are employed, mechanical equipment should not be visible from ground level or adjacent buildings.

All ground equipment such as communication devices and transformers should be screened from view and should be located remotely from major pedestrian routes and building entrances.

Energy Performance
Buildings in the Innovation Park are expected to be models of high performance sustainable design for lab and research facilities. To that end, the energy usage intensity (EUI) of the buildings, as measured on a BTU per square foot per year basis, should meet or exceed the state mandates for energy performance as documented in the Sustainability chapter of this report.
Site and Landscape Guidelines

The landscape guidelines for the Innovation Park are intended to inform future and more detailed landscape planning, design, and engineering studies. The general intent is to create a “working landscape” that preserves and enhances natural systems and habitats, employs low-impact strategies for stormwater management, reduces the need for irrigation, and decreases the overall reliance on fossil fuel for landscape maintenance.

To ensure that a coordinated and sustainable site emerges over time, it is recommended that a comprehensive grading plan be developed for the site along with a comprehensive stormwater management concept well in advance of constructing the initial infrastructure and building projects.

The following summarizes the landscape and site recommendations:

Habitats / Natural Systems

The Innovation Park site is located adjacent to a unique habitat environment for Monarch Butterflies. The master plan includes a zone to protect this special place and ensure its long term preservation. No development will be permitted within the habitat delineation zone.

Water Resource Management

The opportunity exists to design and plan the Innovation Park as a model of sustainable stormwater management practices as noted in the Sustainability chapter of this report which encourage the utilization of the landscape features to filter runoff and the on-site treatment of stormwater. On-site treatment offers several benefits:

- Removal of pollutants
- Reduction in volumes and velocity of runoff
- Reduction in watercourse erosion, sediment suspension and loss of aquatic habitats
- Conversion of runoff to evapotranspiration via the use of vegetated infiltration systems

Specific design recommendations include utilization of rain gardens, green roofs, pervious paving and techniques which facilitate infiltration and onsite treatment of stormwater as appropriate given soil and topographic conditions.

Irrigation

Native plant materials and small areas of turf grass are proposed in order to limit the need for irrigation at the Innovation Park. Irrigation is recommended only to establish new plant materials or if grey water or rainwater harvesting systems are employed.

Landscape Zones

The following general landscape zones are proposed for the Innovation Park:

- A central academic-focused quad has been discussed for the site master plan. This quad is envisioned as the most manicured and maintained landscape of the Innovation Park as it will serve as the central gathering space for the surrounding research and lab facilities. Subject to further study, the Plan incorporates rain gardens or other stormwater management strategies.
- The gateway landscape encompasses the frontage of Watertown Plank Road and is envisioned as a meadow-like environment with a naturalistic pattern of tree planting.
- Development patterns should carefully consider the relationship of this site to the parcel to the east which is envisioned by the County to become a recreational park. Ties between the two sites through pedestrian linkages and other natural features are encouraged.
- Roadways, within the academic and research zone, are envisioned as landscape corridors featuring street trees.

Pedestrian network

Pedestrian connections should be emphasized throughout the site development to encourage a walkable development pattern.
**Bike trails**
A designated bike / pedestrian trail should be incorporated into the site master plan. This will not only connect development on the site but also provide linkages to the neighboring future park area to the east.

**Transit Stops**
Transit stops should be coordinated with building entrances and other gathering spaces to facilitate the use of transit services. A central transit portal is proposed in association with a primary building lobby to ensure that a conditioned waiting space can be provided in association with restrooms and convenience services.

**Road Right-of-Ways**
The proposed central access road through the Innovation Park will link Watertown Plank Road and Swan Blvd to the north.

The roadway cross section is envisioned as a continuous landscape zone where street trees provide shade and establish a unified and coordinated arrival sequence into the Innovation Park. Traffic Calming is recommended to slow traffic at key crossing points including the use of narrowed road widths and changes in pavement. The exact details of the central access road will be the subject of more detailed site studies.

**Parking Lots**
Parking is viewed comprehensively on the site. A mix of green surface lots and structured parking are proposed to address the parking demand on site. To that end, parking for individual buildings is provided in a combination of proximate and remote parking lots in order to develop the site in a compact, pedestrian friendly manner. Parking ratios of 2.5 spaces per 1000 gsf are proposed for academic uses, and 3.5 spaces per 1000 gsf for private development. Landscaped medians and trees are proposed in the parking lots. Subject to appropriate soil conditions, bioswales should be considered to detain and treat runoff from the parking lots.

**Service and Delivery Areas**
The service areas are to be visually screened from view by walls / fences of a minimum of six (6) feet in height. The walls/fences should be designed to complement the building materials utilized. Where such areas are visible from pedestrian or vehicular circulation routes, they should incorporate gates to screen all equipment and loading docks.

**Utilities**
All utilities within the Innovation Park should be located underground in consolidated in corridors established as part of future engineering studies. A central boiler and chiller plant should be considered as development expands.

**Signage and Wayfinding**
A comprehensive signage system is recommended for the Innovation Park to reinforce a sense of place and UWM identity. Special gateway signage is proposed for the main entrance on Watertown Plank Road and at the north entrance on Swan Boulevard.

**Street furnishings and lighting**
As the initial facilities are developed in the Innovation Park, standards should be established for lighting, seating, trash receptacles and bike racks, etc.
COLUMBIA ST. MARY’S

Columbia St. Mary’s (CSM) is located immediately west of Maryland Avenue, between Hartford and Newport Avenues and contains 10.9 acres of space in a variety of historic and contemporary hospital buildings. The site includes a central plant and an 800 car parking garage and 175 surface spaces. The hospital plans to combine its operations at a new facility along East North Avenue and is anticipated to vacate the site in late 2010 or early 2011.

At this writing, CSM was being considered as a potential expansion site for future UWM academic facilities, support services, housing, parking and recreational space. Funds were also being allocated to purchase and redevelop the property.

Rationale
The proximity of the Columbia St. Mary’s (CSM) parcel to the Kenwood campus presents a strategic opportunity to expand the land-locked Kenwood campus and incorporate an additional 850,000 gsf into the campus.

Vision
The preliminary vision for the CSM site is to provide additional academic space. The site may also accommodate student life and parking facilities to meet critical shortfalls at the Kenwood Campus. The potential for student housing provides the opportunity to incorporate living-learning opportunities into the campus environment.

Program Fit
The existing CSM office building presents an opportunity for academic uses that are adjacent to the academic core of the Kenwood campus, as well as back-office administrative uses. The existing hospital bed towers offer a building typology appropriate for student housing, with an estimated potential of 1,200 beds. In addition to housing, dining and recreation would support an increased student residential component. Finally, due to good pick-up/drop-off access, CSM may be appropriate for the relocated Children’s Center or a new Student Health Center.

Feasibility and Implementation
Utilization of the CSM for UWM expansion will require further study to determine how existing buildings can best be re-purposed to accommodate programmatic needs. A thorough facilities conditions assessment is required to categorize buildings and determine those suitable for renovation and those which should be considered for demolition. Several buildings have historic value and will therefore need to be re-purposed in an appropriate manner.

Design Guidelines
A future architectural master plan and feasibility study is recommended to determine how to best utilize the CSM site in support of the UWM mission. Specific design guidelines should be an outcome. Key campus and urban design concerns to be addressed in the guidelines include:

- Pedestrian connectivity between CSM and Englemann and between CSM and the Sandburg Towers.
- Pedestrian connectivity through existing and proposed buildings to ensure ease of movement and to provide convenient connections to the parking garages.
- Architectural definition of the street edge conditions along Hartford and Maryland.
- Active uses located on the ground floor of existing and proposed facilities. The corner of Maryland and Hartford is a key opportunity for a public use.
- A comprehensive stormwater strategy is required for the site utilizing the techniques outlined in the Sustainability chapter of this report.
LINCOLN PARK

Lincoln Park is located approximately four miles northwest of the Kenwood campus, bounded to the east by Highway 43, to the west by Green Bay Avenue, and to the south by Glendale Drive. UWM has had a presence at Lincoln Park since it began playing its home baseball games at the park’s Henry Aaron Field in 1994. UWM leases the facility from Milwaukee County and pays for the necessary maintenance required to comply with Horizon League standards. The current baseball field includes lighting but does not have indoor locker room facilities, an adequate press box, or permanent seating and, therefore, is not eligible to host Horizon League Championship events.

Vision

The UWM Athletics Department envisions an Athletic Village at Lincoln Park to accommodate much needed expansion, particularly for baseball, tennis, soccer, track, and a practice facility. By clustering athletics venues, the Athletics Department can realize efficiencies through shared usage.

Rationale

The master plan recommendations include a re-imagining of Englemann Field, which is currently home to the men’s and women’s soccer team. Over time, Englemann Field could become a passive recreation quad for use by the entire UWM community. In the short term, Englemann Field can continue hosting collegiate soccer; however, if it was determined to be advantageous to relocate the soccer competition field to another site, Lincoln Park could provide the opportunity to accommodate such a need.

UWM has made recent investments at Lincoln Park baseball facility including new dugouts prior to the 2004 season and adding a new scoreboard in 2008. UWM has also taken on maintenance duties at the facility and continues to do work on the infield grass and dirt surfaces.

Feasibility and Implementation

Future utilization of Lincoln Park should be the subject of a detailed programming and master plan study for Athletics and recreation. Should the University maintain interest in Lincoln Park, it will need to pursue discussions with the County regarding the development potential.

Design Guidelines

Design guidelines for the Lincoln Park site should be developed as part of a comprehensive master plan and feasibility study.
TRANSPORTATION

Given UWM’s anticipated presence at multiple locations in the Milwaukee region, connectivity is essential in terms of providing safe, efficient, and navigable passage between sites. As such, the Master Plan accommodates connectivity at a variety of scales: within the Kenwood campus, between the Kenwood campus and other East Side facilities, and between the East Side and other potential UWM locations downtown and to the west.

The transportation framework describes an integrated circulation system for UWM that includes entrances, pedestrian, transit, bicycle, vehicular, and parking networks. Fundamental to all of these networks is the desire to reduce the vehicles miles traveled to the campus, an emphasis on efficiency and accessibility, and a commitment to create a pedestrian- and bicycle/transit-oriented campus. The transportation recommendations champion a comprehensive Transportation Demand Management (TDM) approach that prioritizes walking, cycling, and transit.
TRANSPORTATION GOALS

- Provide an integrated and comprehensive transportation system that includes pedestrian, transit, bicycle, vehicular, and parking networks.
- Create an efficient, accessible, and financially feasible transportation system.
- Reduce the vehicle miles traveled by providing safe and reliable transportation options.

KEY RECOMMENDATIONS

- Design streets and roadways to accommodate safe travel for a variety of different modes, not just serve as conduits for vehicle traffic. Additionally, they need to provide a sense of arrival to the campus.
- Create new mid-block and intersection crosswalk connections that align with the overall circulation network proposed in the Master Plan. Crosswalk treatments include curb extensions, high visibility crosswalk markings, pedestrian warning signs, and raised crossings and speed tables.
- Create better bicycle connections to major bike routes and paths in the City.
- Integrate bicycle facilities into campus design plans, including bicycle parking convenient to building entrances, high quality bicycle parking strategically located throughout the campus, and shower and changing facilities.
- Promote and market transportation alternatives.
- Work with the Milwaukee County Transit System (MCTS) to ensure that transit routes serving the University do not see service reductions. Advocate for potential new routes.
- Continue shuttle service for housing and UPark locations. As opportunity sites are developed, the University may want to offer shuttle service until such time that adequate transit is provided.
- Establish a transit hub at The Union to better integrate transit into the fabric of the campus and to provide a sheltered place to wait.
- Maintain current parking ratio at the Kenwood campus. This means that spaces lost to construction need to be replaced at a 1:1 ratio, likely in an underground structure. To the extent possible, continue use of off-campus UPark lots and identify additional off-site parking lot possibilities.
Transportation Demand Management (TDM)

Strategies considered within the Master Plan are broad and include a variety of tactics. Improvements to the organization and configuration of pedestrian, bicycle, and transit networks are designed to facilitate movement, and are supplemented with alternative transportation incentives and parking policies that discourage automobile use. Increased housing opportunities on or near campus will also encourage pedestrian and bicycle movement to and from campus, fortified by an efficient shuttle system. The overall Transportation Demand Management approach relies upon improved technology that promotes the real time display of information for bus, light rail, and shuttle services, and an enhanced website that presents transportation as an attractive, easily accessible, and coordinated system.

Modal share describes the percentage of travelers using a particular type of transport. The current modal share for students at the Kenwood campus is 42% who self-drive, with the remaining 58% using alternate means, such as walking, bicycling, bus, or carpool. For faculty, 63% report driving themselves. In order to limit the demand for parking, as well as to reduce carbon emissions, the University should work to decrease the percentage of those who drive themselves and increase the percentage share of alternate means of transportation.

The charts at right display the current modal share, as well as targets for the future modal share. The target reduces the “Drive Self” category and increases “Walk”, “Bicycle”, and “Bus” proportionately. Specific strategies for increasing the targets for alternative transport are discussed in the following section and in more detail in the Transportation Appendix.
Proposed Street Sections

The proposed street sections diagrammed above are intended to improve pedestrian safety, accommodate bicycle and transit ways, and enhance overall campus aesthetics.

1. Kenwood Blvd

Kenwood Blvd is the formal address to the campus and should continue to be the front door for the campus community, the community-at-large, and for visitors to the University. Landscape and street design should enhance the important role that Kenwood Blvd plays in the campus context. By continuing to maintain and replace missing trees along the Blvd, respecting the generous landscape setbacks, and celebrating the entry courts and access points that lead people to the campus core, Kenwood Blvd will remain the iconic front door to the campus.

2. Hartford Avenue

Hartford Avenue intersects the campus from east to west just north of the Library. While Hartford provides access for buses and vehicles dropping off students and making their way through campus, it also creates a somewhat dangerous barrier for those crossing the street. To address safety concerns, improvements should be made to the street and landscape design to channel students to designated crossings.

3. Maryland Avenue

Maryland Avenue, like Hartford bisects the campus and creates a somewhat unsafe condition for crossing students. Maryland runs north/south between the Student Union and the new Science and Engineering Quad. As with Hartford, enhancements to a controlled number of crossing points, where sidewalks should be extended to slow traffic down and shorten crossing distances.
Pedestrian Circulation (indoor & outdoor)
A goal of the Master Plan is to create a pedestrianized campus within an integrated and accessible environment. While recognizing the importance of vehicles for campus access, the Master Plan is designed to minimize vehicular movement once on campus by keeping parking to the campus periphery and by providing an effective pedestrian circulation network. The plan prioritizes pedestrian and bicycle movements through compact development, shaded, landscaped walkways, and interior connections and corridors that link buildings. These pathways function as part of a larger circulation system, constantly linking pedestrians to public spaces and key locations on campus.

Pedestrian safety is an essential ingredient in creating a pedestrian-oriented Master Plan. Automobiles are limited within the academic core, while traffic calming devices are employed at crossing points along Kenwood, Hartford, and Maryland to further protect pedestrians. Traffic calming strategies include:

- Differentiation in pavement materials
- Narrowed street sections at crossing points

More specific explanation of strategies and recommendations are provided in the transportation appendix.

Bicycle network
Bicycle circulation within the broader East Side and Milwaukee urban context is encouraged and reinforced through the Master Plan design. Many of the streets surrounding the University campus have bike lanes or are designated bike routes. Additionally, Oak Leaf Trail runs along the Milwaukee River just west of the campus as well as along the lake shore just east of the campus. The bike infrastructure provides convenient access into downtown Milwaukee either by street or on a separate trail.

Overall, the bike network provides an additional form of accessibility to students, faculty, and staff living downtown and in the surrounding community and facilitates access to other UWM campus locations, such as those at the University Services Building, Kenilworth, Riverview, Plankinton, Pabst, and the Harbor.

The University can enhance its bicycle network by doing the following:

- Expand the UBike Program, which is administered by the Student Union Adventure Center. This program currently loans out up to 70-100 bicycles per semester, free of charge to UWM students.
- Increase the number of bicycle lockers and shower facilities.
- Provide bicycle parking at convenient locations, such as a limited set of building entrances and in parking garages.
- Provide covered, secure bicycle parking.
- Enhance education and promotion of bicycle use.
- Advocate for better bicycle lanes, particularly on Oakland and Locust Avenues.

BICYCLE PARKING AT KENWOOD
Transit

Campus access and transportation are key considerations as UWM plans to locate its academic, research and support facilities at several opportunity sites on the East side and elsewhere in the metropolitan area. To the degree possible, it is recommended that academic programs and support activities are planned so as to minimize the need for undergraduate students to travel between locations. This recommendation is reflected in the program distribution strategy described elsewhere in this report.

In order to ensure that connectivity is provided, the Master Plan recommends enhanced and expanded transit services comprised of both University operated shuttles and MCTS buses. The focus on transit has the potential to support the transportation goals of the City and County, including light rail or bus rapid transit services. It also has the potential to assist UWM in lowering single occupancy vehicle trips and the associated demand for parking and greenhouse gas emissions.

To facilitate transit use, enhance the user experience and establish a common UWM identity, one or more transit portals are recommended at each of the proposed UWM locations. These portals or mobility hubs are envisioned in association with building lobbies or prominent outdoor spaces. They will include, depending on location, the following: sheltered waiting areas, convenience retail, bicycle racks, access to technology and other amenities that support the commuting population. Each portal is envisioned to have a common design identity and similar amenities/services to orient transit users as they move between the various UWM locations throughout the City.

Milwaukee County has developed a long-term vision for transit, which includes service proximate to several UWM campus locations. This transit corridor, which is proposed along Oakland Avenue adjacent to the Kenwood campus, would connect Kenwood with UWM connections at Kenilworth, Riverview, Plankinton, and GLRF. While this service will not be provided in the immediate future, UWM should play an advocacy role in ensuring the transit meets the needs of its population, since the University will provide a major source of ridership.

In the short-term, the Milwaukee County Transit Services (MCTS) currently provides six local routes and three freeway flyer/express routes in Milwaukee County that take passengers directly to the campus. In addition, Wisconsin Coach Lines, a private company, provides two regional routes with service directly to the University. The University Housing shuttle service operates continuously between the UWM campus, Kenilworth Square Apartments, and Riverview Residence Hall.

In cooperation with MCTS, the University developed the UPASS transit program to serve both commuting students and students living on or near campus. The UPASS is accepted as full fare on every MCTS-operated bus route. The cost for UPASS is part of the student segregated fee.

In the future, the University should pursue the following strategies to increase transit ridership:

- Continue to support and promote the use of UPASS.
- Regional collaboration to support transit programs.

In addition to these strategies, the Master Plan creates transit/mobility centers featuring:

1. Interior waiting areas as part of lobbies in buildings
2. Posted schedule and transit information
3. Access to food, technology, and retail
4. Bike parking, lockers, and showers

For the Kenwood campus, these facilities should be located in the Union, IRC Phase 1, the Library, or the Enderis expansion. Specific locations should also be planned for the Brewery, Innovation Park, and the Harbor.

Shuttle

Until such time that the City is able to sufficiently enhance its public transit service, UWM may need to pursue the expansion of its own shuttle operations. The Master Plan recommends that the existing shuttle serving student housing at Riverview and Kenilworth be maintained. An enhancement to the existing GLRF shuttle route should be considered to link the Kenwood campus to Plankinton, and the Harbor via a route along Lincoln Memorial Drive, with a total oneway distance from Kenwood to the Harbor of approximately 7 miles. A third shuttle could connect Kenwood to the Brewery via one of two routes, either the highway (I-43) or via City streets. Both routes are approximately 4 miles. A fourth shuttle could serve Innovation Park. Given the distance of Wauwatosa from the East Side, this shuttle would likely run less frequently than those serving downtown. Like the proposed shuttle to the Brewery, both a highway and City street option are possible routes, with each one-way run about 12 miles. In order for these shuttles to be viable in terms of ridership, the Harbor and downtown routes should run at no more than 30-minute headways, whereas the Wauwatosa shuttle could be hourly, due to its distance from Kenwood. Any classes being offered at the satellite facilities should be scheduled in conjunction with the shuttle schedule.
A TRANSIT PORTAL AT KENWOOD BLVD
**Vehicular Network**

Vehicular circulation will continue to provide convenient access to campus parking for visitors, commuters, faculty, staff, and students. Once on campus, the aim is to facilitate fast and easy movement from parking areas to the proposed pedestrian networks.

Where possible, the aim is to provide access to parking off of the main thoroughfares of Hartford, Kenwood, and Maryland to reduce traffic and congestion on these central corridors that transect the campus and carry a high volume of pedestrian traffic. These streets will be traffic calmed at key points to ensure the primacy of the pedestrian in the overall circulation network.

**Service**

Service vehicles have access to all University facilities. Service areas will be concealed from the primary view corridors by screen walls and landscape elements. Service areas are generally accessible from the peripheral roads, while a few buildings have service access off of combined pedestrian/service routes.
Emergency Access

Life and safety issues are a primary area of concern for the University. Proposed buildings are planned to accommodate access for fire and other emergency vehicles.
Parking
The intent of the Master Plan is to maintain current numbers of parking spaces to serve the primary user groups including faculty, commuter students, staff, and visitors. Students, faculty, staff, and visitors with special needs and those with physical disabilities are given priority in terms of parking allocation and proximity. While the Master Plan is designed to reduce the overall demand for parking through integrated multi-modal transportation options that encourage pedestrian, transit, and bicycle movement, the plan maintains the current ratio of spaces, estimated at 0.20 spaces per person (includes faculty, staff, and students). The Master Plan provides additional spaces to compensate for the loss of surface loss parking due to construction. The total number of replacement parking spaces needed is approximately 650.

It is noted that the current parking utilization on the Kenwood campus is about 77%, although it has been reported to be higher on certain specific days of the year. A lot is considered “full” at 85%. Therefore, by maximizing use of existing spaces the campus currently has by assigning parking locations, the University can gain approximately 175 spaces with aggressive management strategies.
On-site Parking

There are three options for replacing the amount of on-campus parking on the Kenwood Campus:

1. Underground Parking at the corner of Cramer and Kenwood:
Locating parking underground preserves limited land for academic program accommodation. The site at the corner of Cramer and Kenwood, underneath the current Physics Building, has a capacity of approximately 740 parking spaces on two levels of underground parking. The location of this site for parking provides access off of a lower-volume street (Cramer) rather than adding congestion to busy streets such as Kenwood, Hartford, and Maryland. The drawbacks to this solution are twofold. First, underground parking is more expensive than above-grade parking. Moreover, because the parking would be located below a future building, funding would have to be tied to a building project.

2. Underground Parking below Englemann Quad:
Underground parking below Englemann Quad would provide approximately 400 spaces on two levels. The benefits of this site are that above-grade land is used for a student amenity rather than parking, as well as funding is less complex because it would be an independent project not tied to a new building. The drawbacks for this site are the cost, although it is less expensive than if it were under a building, as well as campus access would need to be provided via an internal campus street, bringing vehicles into a pedestrian zone. In addition, the site can only accommodate a portion of the overall spaces needed on campus. Thus, it might prove to be acceptable as a multiple-scenario solution.

3. Above-grade Structure along Cramer Street:
An above-grade structure presents the most affordable option of adding spaces to the Kenwood campus. A four-level structure, with rooftop parking, would provide approximately 550 spaces. The downside to this option is that it uses land that would otherwise be reserved for academics, as well as potential neighborhood opposition and aesthetic concerns. In this case, it would need to be located at one of the opportunity sites.

4. Columbia St. Mary’s:
An above-grade 800-car parking structure presently exists on the Columbia St. Mary’s site. Although at the time of this writing its future was uncertain, it may become a critical part of the Kenwood campus parking solution.

Off-site Parking

UPARK is a satellite parking lot and shuttle system developed to address the parking needs of commuting students, faculty, and staff. All locations provide free parking and a free shuttle service to campus. One UPARK lot is located at the intersection of E. Capitol Drive and N. Humboldt Blvd. Two additional locations are on the lakefront along Lincoln Memorial Drive at Veteran’s Park and McKinley Marina. The future use of the 800-spaces at these locations is uncertain. Discussions are taking place to consider use of the other locations to provide a source of replacement parking for this critical off-site parking need.
SUSTAINABILITY

The concept of sustainability at UWM, like at campuses throughout North America, is informing planning and decision-making processes. UWM’s commitment to sustainability is evidenced by the appointment of a campus Environmental Sustainability Coordinator in January 2008 and by the Draft Environmental Sustainability Plan released in July 2009. The UWM Master Plan supports and advances the objectives established by the University in the Draft Environmental Sustainability Plan. This section of the Master Plan report summarizes following:

- Goals and Objectives for Sustainability set out in the UWM Draft Environmental Sustainability Plan
- The Regulatory Context for various sustainability indicators in the physical environment
- Best Management Practices for future development
- Strategies for the Kenwood Campus

Additional and more detailed information supporting the sustainability objectives is available in Sections 2 (Assessment of Existing Hydrology and Stormwater Management Systems) and 6 (Summary of Utility and Infrastructure Issues) of the Phase A Master Plan Analysis findings and the Technical Appendix to the Master Plan. Both Appendices are documented separately.
UWM ENVIRONMENTAL SUSTAINABILITY PLAN

The 2009 UWM Draft Environmental Sustainability Plan establishes goals and objectives for sustainability in the following areas:

- Physical environment and resources
- Campus Life (sustainable food services and University housing and unions),
- Community Engagement, and
- Academics

The goals and objectives of the Environmental Sustainability Plan, as written, apply primarily to the Kenwood campus and the existing conditions at UWM. Future updates by the University will need to establish specific objectives for development at UWM locations beyond the Kenwood campus. Development at new locations provides several opportunities to plan and design with sustainability as a primary goal. To that end, recommendations are provided in the Master Plan to encourage sustainable outcomes at all UWM facilities.

The overarching goal of the Environmental Sustainability Plan is: to embrace sustainability as a core institutional value in all UWM planning, operations, and academic programs with the aim of positioning UWM as a critical stakeholder and example in education and workforce development in the Milwaukee region. The main objectives are to:

- Increase student, staff and faculty awareness and education regarding the environment, sustainability, and human impact on our natural resources and community.
- Develop and strengthen resources for expanding a sustainable UWM Campus and Community (short and long term)
- Establish new and expand existing Community Partnerships, including area schools, non-profits, and businesses
- Utilize the interdisciplinary nature of sustainability to reach out to all academic areas
- Bridge internal and external inherent gaps to foster new communication and problem solving techniques.
- Establish relevance to city and regional priorities (M7) in workforce and economic development.

Source: UM-Milwaukee Environmental Sustainability Plan, July 2009 Draft

While the Environmental Sustainability Plan addresses broader operational and academic goals, the Master Plan focuses on those goals that relate to the physical development of UWM facilities and sites. Specific objectives and targets for resource consumption are provided for water resources, energy, emissions, transportation and natural resources / landscapes.

Achieving the targets set out in the Environmental Sustainability Plan will take place in a context of an expanding Kenwood campus as well as the development of additional UWM sites in the Milwaukee region. During the next 10 years, the Master Plan sets out a vision for an additional 1.5 million square feet on the Kenwood campus, increasing the total area of the campus to roughly 4.5 million square feet. Additional space leads to the demand for more energy, resulting in the need to design high-performance buildings and to renovate buildings to reduce consumption if the overall energy consumption and emissions objectives set out in Environmental Sustainability Plan and government mandates that apply to UWM facilities are to be achieved.

Looking ahead, an emphasis on sustainability will necessitate a focus on key indicator metrics and a reporting procedure to assess if the objectives and targets of the Environmental Sustainability Plan are being met. Like the Master Plan, the Environmental Sustainability Plan will need to be updated in response to the indicators and evolving circumstances as UWM facilities are developed.
PHYSICAL ENVIRONMENT AND RESOURCES

Water Resources
- Reduce campus water usage by 20% through operations and human behavior changes from a 2005 baseline by 2012. Continue to conserve and reduce consumption incrementally each year.
- Engineer and landscape for zero-stormwater discharge from the Kenwood campus by 2020 at the roof top and ground level.

Energy
- Reduce energy consumption per square foot by 20% of the fiscal year 2005 State energy report baseline (adjusted for weather) through operations and human behavior changes. Continue to reduce consumption over time in accordance with any subsequent Executive Order issued by the Governor of Wisconsin.
- Secure renewable energy sources to supply 20% of campus use by 2020, and adjust to any other goal set forth by the Governor and State of Wisconsin, through the use of, but not limited to, solar, wind and geothermal energy.
- Reduce consumption of fossil fuel by the University fleet vehicles, through operations scheduling and by vehicle types utilizing the latest fuel efficiency standards / technology and economic feasibility for the campus.

Built Environment
- Design for the efficient use of energy in all new and existing facilities and in accordance with the Division of State Facilities Sustainable Facilities Guidelines. Apply for LEED Certification, stressing energy efficiency, whenever economically feasible.
- Utilize current space and land efficiently to optimize the use of UWM facilities and energy.

Transportation
- Double alternative transportation journeys to the campus through incentives, community partnerships and resource adjustments by 2020, relative to a 2008 baseline.
- Develop campus, community and multi-county strategy and programs to encourage the use of alternative transit, including, but not limited to pedestrian, bike, bus, train and carpooling that is relevant to all UWM sites.

Natural Resources / Landscapes
- Sustain and increase the use of native and perennial landscaping with the aim of reducing maintenance costs over time and fostering an awareness of Wisconsin ecology.
- Eliminate the use of all pesticides and synthetic fertilizes, while increasing the health of campus soil / lawns by aeration, natural compost and seeding by 2012.
- Enhance preservation strategies for Downer Woods focusing on the management of invasive species and encouraging the campus community to use the Woods for passive and active education about the environment.

Waste
- Increase recycling rates and waste minimization programs incrementally each year.
- Find new sources for current waste via City and community processors, as well as faculty research.
- Recycle 50% of all construction and demolition site waste on all campus remodeling and new construction projects, effective immediately.
- Increase the awareness of the UWM community with regard to recycling logistics, services and progress.

Indoor Air Quality
- Provide the UWM community with safe, quality indoor air in all campus buildings, free of excess toxins and pollutants.

Purchasing Policy
- Purchase University materials and services based on these sustainable factors, whenever possible, meeting multiple qualifiers.
- Durable, form of the product is suited for its function to maximize its lifetime.
- Product is made from pre/post consumer or industrial recycled material.
- Product can be recycled in the end, and the campus operations are set up to do so.
- Efficiency of the product or machinery will save money by utilizing less water or energy over its lifetime.
- Product is documented to produce significantly less toxins and is preferably biodegradable. Product is harvested or made within a 500 mile radius of UWM campuses and sites.
- Product is shipped with minimal packaging (consistent with care of the product), and preferably made of recycled and/or recyclable materials.
- Purchase and monitor certified products that meet the ENERGY STAR, Green Seal Certified, NSF 140 2007, Green Guard, ISO 140001, and The Forest Stewardship Council Standards, wherever such ratings exist, and to such standards and certifications as they evolve.

Increase the reuse of campus furniture and equipment by redistribution on campus, through public sale and through donation to area non-profits.
<table>
<thead>
<tr>
<th><strong>CAMPUS LIFE</strong></th>
<th><strong>COMMUNITY ENGAGEMENT</strong></th>
<th><strong>SUSTAINABILITY IN ACADEMICS</strong></th>
</tr>
</thead>
</table>
| **Sustainable Food Services** | - Work with community groups and individuals to address environmental concerns that are relevant to both the campus and surrounding community.  
- Collaborate with the Urban Ecology Center and other area organizations on environmental awareness campaigns.  
- Make the findings and outcomes of sustainable practices and programs utilized by UWM available to the surrounding community. | - Establish quality, interdisciplinary education opportunities on environmental literacy and sustainability for all undergraduate programs.  
- Relate multiple UWM academic programs to sustainability education at area K-12 Public and Technical Colleges.  
- Utilize campus operations as a laboratory for sustainable research projects. |
| - Increase healthy, local and organic dining options on campus at an incremental rate.  
- Create and maintain connections with local farmers, and utilize local produce and products on campus whenever possible, reflective of the season.  
- Educate the UWM community about the benefits of local, organic food options.  
- Compost all pre-cooked kitchen scraps by 2010, and all post-kitchen scraps by 2012. | | |
| **University Housing and Student Union** | - Align with the Physical Environment and Resource Objectives of the Environmental Sustainability Plan.  
- Establish or increase environmental awareness and education for staff and students. | |
PHYSICAL ENVIRONMENT AND RESOURCES

The physical environment and resource objectives of the Environmental Sustainability Plan address water resources, energy (emissions), the built environment, transportation, natural resources and landscapes, waste management, indoor air quality, purchasing policies. Of these, natural systems / landscapes, water resources, energy (emissions), the building environment and transportation are the focus of the Master Plan.

NATURAL SYSTEMS/LANDSCAPES

The Environmental Sustainability Plan and the Master Plan encourage the preservation of natural systems and habitats on all existing and future UWM locations. The term natural systems refers to the interrelationship between the soils, topography, vegetation, and drainage patterns of a site. Collectively, these systems contribute to the habitat value of the land.

In preserving the natural systems of a site, the landscape strategies proposed for existing and future sites must respond to these systems, repair them where they have been compromised and establish built conditions that work in harmony. To that end, “working landscapes” are proposed in the Master Plan. Working landscapes are designed to not only address aesthetic values; they are also designed to be functional in response to habitats, vegetation, and drainage as well as provide shade and wind protection in the built environment.

The Environmental Sustainability Plan includes several natural systems / landscape objectives:

- Sustain and increase the use of native and perennial landscaping with the aim of reducing maintenance costs over time and fostering an awareness of Wisconsin ecology.
- Eliminate the use of all pesticides and synthetic fertilizers, while increasing the health of campus soil / lawns by aeration, natural compost and seeding by 2012.
- Enhance the preservation strategies for Downer Woods focusing on the management of invasive species and encouraging the campus community to use the Woods for passive and active education about the environment.

Source: UW-Milwaukee Environmental Sustainability Plan, July 2009 Draft

Natural Systems / Landscape Recommendations

The landscape guidelines for the Kenwood campus are intended to result in a working landscape over time. The guidelines address the objectives of the Environmental Sustainability Plan and provide a reference for landscape interventions on the Kenwood campus and future sites occupied by UWM. For more detail on the landscape proposals of the Master Plan, please see the Landscape Design Guidelines section of this report.

The following recommendations related to natural systems / landscapes are incorporated in the Master Plan:

Kenwood Campus

- The Downer Woods on the Kenwood campus are legally protected. Accordingly, the Master Plan preserves the woods and conceptually integrates them into the campus landscape by “reforesting” an area outside the legally protected areas. Specifically, the area between Chapman and Enderis is enhanced by the removal of parking and by tree planting. The intent is to extend the Woods southward to Hartford, thereby, making Downer Woods a more integrated feature of the campus.
- The UWM as a Zero-Discharge Zone: A stormwater masterplan, referenced below in the discussion of Water Resources, calls for the integration of landscape features with the functional requirements of stormwater management. Specifically, rain gardens, green roofs and bioswales are proposed not only for their aesthetic value but also for the functions they perform with regard to stormwater management.
- Native plant materials are proposed on the Kenwood campus to reduce the need for irrigation, synthetic fertilizers and pesticides.

Future UWM Sites

Strategies for natural systems and landscapes are site specific and must be developed during the detailed site design process in response to an analysis of the soils, topography, drainage patterns, vegetation and existing habitat conditions. Preliminary guidelines are provided for each of the Opportunity Sites.
NATURAL SYSTEMS

Objectives:
- Sustain and increase the use of native and perennial landscaping
- Eliminate the use of all pesticides and synthetic fertilizers,
- Enhance the preservation strategies for Downer Woods

Strategies:
- Establish a “working landscape”
- Reforest areas that abut Downer Woods
- Integrate landscape features with the functional requirements of stormwater management, such as rain gardens, green roofs, and bioswales
WATER RESOURCES

UWM’s goal of establishing a School of Freshwater Science reinforces the water resource related objectives of the Environmental Sustainability Plan. Further, the emerging emphasis on “water” provides UWM with the opportunity to demonstrate best management practices in the campus environment for both stormwater and potable water resources.

The water resource objectives of the Environmental Sustainability Plan are to:

- Engineer and landscape for zero-stormwater discharge from the campus by 2020 at the roof top and ground level.
- Reduce campus water usage by 20 percent through operations and human behavior changes from a 2005 baseline by 2012. Continue to conserve and reduce incrementally each year.

For detailed information on compliance with the above noted regulations, please see the accompanying Technical Appendix of this report.

Stormwater Regulations

Stormwater management is regulated by local municipalities, the MMSD, the Wisconsin Department of Natural Resources (WDNR), and the United States Environmental Protection Agency (USEPA), and the U.S. Army Corps of Engineers (CORPS). Impacts to waterways and wetlands are also regulated by all of the above listed entities. The Kenwood Campus and the Kenilworth, Plankinton and Great Lakes sites are subject to Milwaukee’s Ordinance 120 requirements.

The following is a list of applicable stormwater regulations for UWM landholdings in Milwaukee:

- NR 216 (Comm 60) Storm Water Discharge Permits—covers three types of stormwater discharge permits: municipal, industrial and construction site.
- NR 151 (Comm 60, Comm 82, Comm 85) Runoff Management (water quality)
- NR 116 Wisconsin’s Floodplain Management Program
- Chapter 30 of the Wisconsin Statues: Navigable Waters, Harbors and Navigation
- City of Milwaukee Ordinance—Chapter 120 (addresses increases in impervious area and peak run-off flow)
- City of Glendale Ordinance—Title 6, Chapter 5
- Milwaukee Metropolitan Sewerage District (MMSD)—Chapter 13 (defines stormwater detention requirements for the MMSD service area)
- Section 404 of the Federal Clean Water Act (regulations discharges to “Waters of the U.S.”)

Sustainable Stormwater Strategies

Sustainable stormwater management and improvement strategies have been the subject of considerable study at UWM as evidenced by The UWM as a Zero-Discharge Zone: A stormwater masterplan for the UWM Campus (May 5, 2006). The Stormwater Masterplan provides an inventory of design opportunities for transforming the UWM campus into a testing site for urban stormwater best management practices. The ultimate goal is to achieve a 100 year zero discharge condition for the campus as a whole. The study catalogued the potential for green roof retrofits, downspout disconnections, and the redesign of both pedestrian and vehicular hardscaped areas. While the recommendations are specific to Kenwood, the overall approach and objectives are applicable to other sites UWM may develop in the future and have informed the recommendations of this Master Plan. The approach complements and informs the working landscape concept proposed for all UWM sites.

The sustainable stormwater management strategies to be considered on the UWM campuses and sites address three interrelated variables/metrics: 1) water quality, 2) water volume and, 3) peak rate of flow.

Water quality—impervious pavement and development prevents natural percolation of stormwater into the soils. (Note: clay soils on the Kenwood campus limit infiltration) Run-off from developed areas is contaminated by chemical pollution such as motor oil and salt resulting in water quality concerns. Proposed water treatment strategies include “green” alternatives that mimic the functions of the natural landscape and allow for treatment in the form of green roofs and rain gardens integrated into the campus landscape.

Water volume—in Milwaukee, like many older cities, stormwater is collected and flows into a single combined (sanitary and storm) sewer system. As a result, all water must be treated before it can be reintroduced into the environment. Major storm events overwhelm treatment facilities resulting in the discharge of mixed stormwater and sewerage directly into waterways. A deep tunnel system in Milwaukee is designed to prevent discharges; however significant events can overwhelm the system. The strategy for all UWM sites is to keep stormwater out of the combined sewer system by utilizing a variety of above grade management installations.

Peak Flow Rate—is a concern due to the surcharging during high intensity, short duration rainfall events. The recommended strategies for mitigating the peak flow rate include detention facilities incorporated with the landscape features of a site. Underground pipe storage may be required in densely developed areas such the Kenwood campus.
WATER RESOURCES

Objectives:

- Engineer and landscape for zero-stormwater discharge from the campus by 2020 at the roof top and ground level.
- Reduce campus water usage by 20 percent through operations and human behavior changes from a 2005 baseline by 2012. Continue to conserve and reduce incrementally each year.

Strategies:

- Detain stormwater above ground and utilize landscape to improve water quality, dissipate volume and slow rate of flow.
- Utilize green roofs, rain gardens and bioswales throughout the campus to decrease discharge rates to combined sewers.
- Daylight internal roof drains where possible and transfer run-off to rain gardens.
- Utilize landscape to handle rainwater from externally drained roofs.
- Decrease impervious area wherever possible.
- Utilize pervious paving as appropriate.
Best Management Practices
The UWM as a Zero-Discharge Zone: A stormwater masterplan for the Kenwood campus identifies a number of recommended best management practices for existing campus buildings and infrastructure as well as new facilities.

The proposed recommendations focus on horizontal surfaces and the rainwater capturing potential of those surfaces. The goal is to leave the water as diffusely scattered across these surfaces as possible. The recommended strategies for all UWM facilities and sites include:

**Green Roofs**: UWM should consider a policy for installing Green Roofs for all appropriate internally drained (low-slope) roof replacement projects and on new buildings. Green roofs retain stormwater and return a portion directly to the atmosphere through evapotranspiration. Facts include:
- A layer of vegetation installed on flat or low sloped roofs
- “Extensive” green roofs have a thin layer of soil and are usually composed of sedum
- “Intensive” green roofs have a thicker soil layer and contain shrubs, trees and other vegetation
- Green roofs can retain 15-90% of rainfall
- Green roofs are most effective in reducing run-off volume and rate
- Green roofs can reduce air pollution, provide habitat for wildlife and sound insulation.

**Rain Gardens**: UWM should adopt a policy of disconnecting externally drained roofs from the storm sewer system and draining them into rain gardens wherever possible.

Rain gardens are landscape features designed to retain and infiltrate stormwater. They are typically 6 to 18 inches deep and include plants tolerant to periodic submersion.

Rain Gardens facts: (MMSD literature)
- Small, vegetated depressions used to capture and infiltrate stormwater runoff
- Plants with appropriate soil mixture and planted with native shrubs, grasses and flowering plants
- Detention times of no more than 24 hours

**Pedestrian Hardscape**
UWM should adopt a policy objective of achieving a “zero-discharge” State for all pedestrian hardscape areas.

**Pervious paving**: includes permeable concrete, paving stone or crushed stone allowing water to drain directly into the ground. In the clay soil conditions, such as the Kenwood campus (clay loams, low in organic content and usually high in clay), the excavation and creation of a drainage layer approximately 24 inches deep is required. Pervious paving is recommended where there is no option for creating a water receiving landscape. In order to avoid contamination of ground water, pervious paving is not recommended in areas of heavy traffic such as loading docks where oil and other concentrated pollutants may be present.

Other hardscape design strategies include:
- Plan for a reduction in impervious area
- Utilize French Drains and dry wells in appropriate locations (soil conditions permitting)

**Vehicular Hardscape**
Bio-retention swales are recommended in parking areas with adequate land area (MMSD suggests an area equivalent to 5% of the surface area drained) and suitable soil conditions. The bio-retention swales are landscapes where water is diverted and detained to treat and slow down peak flow rates. Pervious paving should be considered but only where water receiving landscapes are not possible.

**Kenwood Recommendations**
The Kenwood campus is served by City of Milwaukee combined sewers and separated sanitary sewers, which convey waste water at all times and storm water during precipitation events. Excess flow is occasionally bypassed to the Milwaukee River when MMSD’s deep tunnel system is at capacity. A reduction in stormwater discharged from campus could lead to a reduction in the frequency and severity of these overflow events and, thus, is a goal for the future.

The campus has two drainage areas: 62 acres of the campus drain to the north, while 37 acres drain to the south. The north drainage area is 48 percent impervious and the south is 73 percent impervious. The campus is divided into 21 catchment areas (small drainage basins channeled to underground storm drains).

<table>
<thead>
<tr>
<th>IMPERVIOUS SURFACES:</th>
<th>61 acres or 53 percent of the total campus area (excluding Downer Woods)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pervious Surfaces:</td>
<td>54 acres or 47 percent of the total campus area (excluding Downer Woods)</td>
</tr>
<tr>
<td>Internally Drained Roofs:</td>
<td>23 acres or 20 percent of the total campus area (candidates for green roofs)</td>
</tr>
<tr>
<td>Externally Drained Roofs:</td>
<td>7 acres or 6 percent of the total campus area</td>
</tr>
<tr>
<td>Pedestrian Hardscape:</td>
<td>20 acres or 17 percent of total area</td>
</tr>
<tr>
<td>Vehicular Hardscape:</td>
<td>11 acres or 10 percent of the total campus area</td>
</tr>
</tbody>
</table>
Kenwood Sustainable Stormwater Management Approach

The UWM as a Zero-Discharge Zone: A stormwater masterplan for the UWM Campus (May 5, 2006) provides an inventory of design opportunities for transforming the UWM campus into a testing site for urban stormwater best management practices. The stated goal of the study: to recreate a run-off rate and volume comparable to pre-settlement conditions and to operate within the parameters established by the hydrological behavior of the site in its undisturbed condition.

The stormwater masterplan documents the physical potential of the existing Kenwood campus development pattern to meet a stringent peak discharge rate of 0.5 cfs/acre for a 100 year storm event as proscribed by Chapter 13 of the MMSD’s Discharge Regulations and Enforcement Procedures. The study defines the parameters for zero discharge and the physical implications for the campus but does not provide an exhaustive engineering study or financial optimization analysis. The study included the creation of a computer stormwater management model (SWMM) to serve as the primary predictive tool for the proposals. The model was validated against water flow data and utilized for initial analysis of a green roof for internally drained low-slope roofs and the use of downspout disconnections to rain gardens on externally drained roofs.

The Master Plan endorses the goals of the stormwater study to reduce the rate and volume of stormwater that enters the combined sewer system. To that end, the above noted best management practices are incorporated in the Master Plan. In general terms, the following design recommendations are proposed to guide all stormwater planning and design on the Kenwood campus.

- Detain stormwater above ground and utilize landscape to improve water quality, dissipate volume and slow rate of flow
- Utilize green roofs, rain gardens and bioswales throughout the campus to decrease discharge rates to combined sewers.
- Daylight internal roof drains where possible and transfer run-off to rain gardens
- Utilize landscape to handle rainwater from externally drained roofs
- Decrease impervious area wherever possible
- Utilize pervious paving as appropriate

Pavilion Gateway

The Stormwater Masterplan recommendations are incorporated in a demonstration project known as The Pavilion Gateway. The project details the redesign of four acres of the UWM campus to meet the goal of zero discharge. Key recommendations are incorporated into the campus Master Plan but with modification where necessary to accommodate new development not anticipated in the study.

The Pavilion Gateway vision is to mimic a creek bed and create a new pedestrian path through campus, weaving water and walking into a compelling story. Three guiding ideas inform the design of the project. 1) to create aesthetically interesting water features out of every stormwater “capture” in the study area; 2) to create a coherent pedestrian path that incorporates the separate rainwater features; and 3) to create more clearly defined campus spaces that still meet servicing and functional demands.

The Pavilion Gateway includes distinct rain gardens with similar functions but which are different in character. The gardens feature planting based on the function of the gardens and the microclimate of the context.

- Pavilion Gateway Garden — located in the service area between Sabin Hall and Klotsche, this garden creates a pedestrian plaza and features permeable paving and native plant materials. It serves as the northern entry to the path from the Pavilion Garage. The area retains its function as an emergency access drive and for accessible parking spaces.
- The Spiral Garden — is envisioned as a spiral swale with plantings capable of handling a high volume of water. The swale gathers runoff from the entire basin along the Pavilion Gateway path. Water flows into the Spiral Garden from the south, where it soaks into the ground or enters the storm sewer system at a prescribed rate. It is designed to act as a temporary detention basin but will have standing water for short periods of time in extreme conditions. The spiral form lengthens the exposure of run-off to the biological processes that clean it. It will feature a wooden pier to allow observation and sampling of water leaving the garden.
Merrill Court Garden—is envisioned as a patio featuring permeable pavers surrounded by concentric bands of low maintenance flowering and shade-loving perennial plants and ground covers.

Upper Gardens—are envisioned as the southern Hartford Avenue gateway to the pedestrian path. They feature three panels of rain garden zones separated by weir walls and an observation bridge.

Lot 16 (Curtin Hall)—is transformed into a public plaza space defined on the west by the Pavilion Gateway path.

Pavilion Gateway Plan Features
1. Pavilion Gateway Garden
2. The Spiral Garden
3. Merrill Court Garden
4. Upper Garden
5. Lot 16 Landscaping

Note: The proposals of the original plan for an experimental garden north of Norris are not incorporated due to development of the site in the Master Plan.
Potable Water

The new School of Fresh Water Science sets the tone for demonstrating leadership in potable water management for both existing and proposed facilities. While water supply is not the key concern given the abundant resource of Lake Michigan, conservation is an important consideration with regard to the energy and chemicals required to convey and, then, treat water at the Jones Island Wastewater Treatment Plant (located to the east of UWM’s Great Lakes Research Facility).

Environmental Sustainability Plan Potable Water Goal

Goal: Reduce campus water usage by 20 percent through operations and human behavior changes from a 2005 baseline by 2012. Continue to conserve and reduce incrementally each year.

For the purposes of planning in the context of the UWM mission, it is assumed that the above noted reduction targets apply only to the Kenwood campus. The existing facilities at the Great Lakes Research Facility require significant quantities of potable water for mission-related research. As the facility evolves into the future School of Freshwater Science water consumption is likely to increase. For this reason, GLRF and the School of Freshwater Science are excluded from the 20% reduction target.

Source: UW-Milwaukee Environmental Sustainability Plan, July 2009 Draft

Best Management Practices

LEED-EB offers detailed guidance for reducing water consumption in the built environment for both existing and new buildings. Beyond buildings, the concept of creating “working landscapes” requires the use of native plant materials and the introduction of operational policies that focus on potable water conservation. Irrigation is discouraged on any UWM site except during the early stages of establishing new landscapes or where grey water recovery or rainwater harvesting systems are in place.

UWM’s expansion beyond the Kenwood campus offers several opportunities for demonstrating best management practices in potable water conservation that complement the “water mission” of the School of Freshwater Science. Specific opportunities to be explored in the design process for new facilities and sites, include, among others:

- Recovery of gray water for non-potable water uses
- Rainwater capture for non-potable uses
- Composting toilets and other technologies that minimize the use of potable water
- Landscape strategies that minimize the need for potable water use for irrigation (rainwater capture and grey water could be utilized for irrigation)

WATER CONSUMPTION: EXISTING AND TARGET (KENWOOD)

![Water Consumption Chart]

- 2006-2007
- 2007-2008
- Target: 20% Reduction
UWM has taken steps in recent years to reduce water consumption on the Kenwood campus. The Wisconsin Energy Initiative in the year 2000 enabled the University to reduce consumption by 46.6 million gallons annually.

Kenwood Campus Recommendations

Annual water consumption on the Kenwood campus was 124,086 cubic feet in 2006-07 and 117,024 in 2007-08, a decrease of 6%. The Great Lakes Research Facility experienced a considerable increase in potable water use from 2006 to 2008, (172,047 cubic feet in 2006-07 and 306,655 in 2007-08) indicative of the growing nature of the research program. This increase illustrates the opportunity to offset potable water needs through rainwater harvesting and potential measures for conserving water. Freshwater consumption is expected to increase as the new School programs grow and advance.

UWM has taken steps in recent years to reduce water consumption on the Kenwood campus. The Wisconsin Energy Initiative in the year 2000 enabled the University to reduce consumption by 46.6 million gallons annually. The initiative involved:

- Toilet replacement: 97% of toilets on campus, suitable for cost-effective upgrades, were changed to low-flush models (1.6 gallons per flush)
- Facet replacement: 97% of faucets, suitable for cost-effective upgrades, were changed to either 0.5 or 1.5 GPM (gallons per minute) low-flow faucet restrictors.
- Showerhead replacement: 74 percent of all showerheads, primarily in Sandburg Hall, were replaced with 2.5 GPM adjustable spray showerheads.
ENERGY

Energy use in UWM facilities is inextricably tied to the types and amount of space provided, the efficiency of the buildings (operational and envelope), operational practices, the maintenance of equipment and the efficiency of energy generation. Looking ahead, these will be important considerations as UWM seeks to expand on the Kenwood campus and at other locations in the metropolitan area.

The objectives of the UWM Environmental Sustainability Plan and Executive Orders issued by the Governor of Wisconsin establish energy conservation and performance targets for existing and future UWM facilities. As a result, a coordinated approach to energy and space management is recommended. It will be challenging for UWM to expand while decreasing overall energy consumption, especially given the amount of energy intensive research space proposed.

It should be noted that energy management and planning will likely receive greater attention in the coming years due to increased public focus on climate change and the need to reduce fossil fuel consumption and the associated greenhouse gas emissions. Guidance and strategies will evolve in response to changing technology, government mandates and cost considerations.

UWM Environmental Sustainability Plan Energy Objectives:

Energy planning for UWM facilities will be guided through the year 2020 by the following objectives, which fall into two categories:

Energy

- Reduce energy consumption per square foot by 20% of the fiscal year 2005 State energy report baseline (adjusted for weather) through operations and human behavior changes. Continue to reduce consumption over time in accordance with any subsequent Executive Order issued by the Governor of Wisconsin. Note that this goal will be challenging to realize given the increasing intensity of use of buildings.

- Secure renewable energy sources to supply 20% of campus use by 2020, and adjust to any other goal set forth by the Governor and State of Wisconsin, through the use of, but not limited to, solar, wind and geothermal energy (this does not necessarily require this to be achieved at each UWM location).

Built Environment

- Design for the efficient use of energy in all new and existing facilities and in accordance with the Division of State Facilities Sustainable Facilities Guidelines. Apply for LEED Certification, stressing energy efficiency, whenever economically feasible.

- Utilize current space and land efficiently to optimize UWM facilities and energy.

Source: UM-Milwaukee Environmental Sustainability Plan, July 2009 Draft

ENERGY REDUCTION REQUIRED BY 2020 (KENWOOD)
ENERGY & EMISSIONS

Objectives:

Energy

- Reduce energy consumption per square foot by 20% of the fiscal year 2005 State energy report baseline
- Secure renewable energy sources to supply 20% of campus use by 2020

Built Environment

- Design for the efficient use of energy in all new and existing facilities and in accordance with the Division of State Facilities Sustainable Facilities Guidelines. Apply for LEED Certification, stressing energy efficiency, whenever economically feasible.
- Utilize current space and land efficiently to optimize the use of UWM facilities and energy.

Strategies:

- Reduce operating costs by applying efficiency upgrades at the building level
- Capture low-grade waste heat at the Central Plant boiler stacks
- Conduct a comprehensive analysis of extending the Lake intake to a depth where water temperatures are colder
- Utilize Lake Michigan as a solar collector
- Investigate the option for an independent district heat pump loop to serve future buildings along Kenwood and Cramer
Regulatory Considerations

In recent years both State government and the governor’s office have issued legislation and executive orders for reducing energy consumption in State facilities.

Executive Order 145 (EO 145)
The mandates established by the Governor of Wisconsin in EO 145 are reflected in the above noted objectives of the Environmental Sustainability Plan. The specific requirements are:

- Reduce actual energy usage per square foot by at least 20% by 2010. (from the baseline fiscal year FY 05 State energy report)
- Ensure that new State facilities are constructed to be 30 percent more efficient than commercial code
- Address sustainable operations and maintenance practices
- Pursue demonstration projects at State facilities regarding use of photovoltaic and other renewable technologies to generate electricity and use alternative fuels for heating and cooling
- Develop sustainability and energy efficiency goals, the budget and management review, the purchasing of renewable energy, and the implementation of the sustainable building guidelines.

In response to EO 145, the Department of Administration, Division of State Facilities released a Sustainable Facilities Policy and Guidelines, which endorses LEED-EB guidelines. In response to UWM’s Environmental Sustainability Objectives, EO 145, and the Sustainable Facilities Policy issued by DSF, several recommendations are proposed and coordinated with the Master Plan. The recommendations fall into following categories:

- Efficiency and Conservation
- Passive Design Strategies
- Energy Usage Intensity (EUI) Targets
- Renewable Energy

Best Management Practices

Looking ahead, UWM will be expected to manage and plan for efficient utilization of energy in a context of increasing square footage. The Master Plan illustrates a potential increase in the range of 1.3 million square feet on the Kenwood campus. Including other potential locations, a total 1.5 million square feet could be added to the UWM space inventory over the next 20 years. This excludes increases associated with potential acquisitions at the Opportunity Sites. The energy challenge over the next 20 years will be to decrease consumption in existing facilities while adding space to the UWM inventory.

The Division of State Facilities, Sustainable Facilities Policy and Guidelines, October 2007 which promote the use LEED-EB guidelines for future buildings provides a well established framework for addressing several active and passive design strategies to reduce energy consumption. A greater focus is provided for energy efficiency in the executive orders and other governmental mandates and by the Energy Usage Intensity targets recommended in the Master Plan.

In response to UWM’s Environmental Sustainability Objectives, EO 145, and the Sustainable Facilities Policy issued by DSF, several recommendations are proposed and coordinated with the Master Plan. The recommendations fall into following categories:

- Efficiency and Conservation
- Passive Design Strategies
- Energy Usage Intensity (EUI) Targets
- Renewable Energy

Efficiency and Conservation

Reducing energy consumption in existing UWM facilities is a key consideration in meeting the reduction targets of the Environmental Sustainability Plan and EO 145. A range of efficiency improvements are possible including HVAC upgrades, lighting retrofits and other adjustments to the building systems. As major renovations are carried out on existing buildings in association with programmatic moves, the University will have the opportunity to renovate buildings with specific efficiency targets in mind. Reducing energy consumption in existing buildings will be necessary to offset the increased demand generated by new buildings proposed in the Master Plan. Several conservation measures are proposed:

- Efficiency Upgrades: complete buildings system upgrades and renovation projects with energy conservation as a key goal. Reduce electrical demand in buildings.
- Education programs: UWM should develop programs to educate faculty, staff and students about energy use and encourage them to conserve energy. Empowering the campus community to divert money from energy bills to capital investment and programmatic support can provide strong incentives to conserve energy.
- Operations: Coordination of building occupancy / building use to reduce wasteful operation of almost empty buildings during non-peak hours.
- Metering Installation: The lack of metering by building hinders efforts to determine where the energy is consumed (other than the Central Plant).
- Self funding revolving fund: the University is encouraged to develop a strategy for self funding improvements through the use of a revolving loan fund that will be paid back from the resulting energy savings. Many institutions have instigated “green loan funds” which are funding mechanisms that encourage and support capital investment to reduce energy use and costs.
Passive Design

Building orientation is an important factor determining the energy requirements for future buildings, especially those that do not have a large internal heating or cooling load generated by lab equipment or high occupancies. Where possible, buildings should be oriented on an east – west axis to ensure optimal solar design opportunities and passive design techniques. External shading devices are required where significant east and west exposure could increase cooling loads on buildings.

Landscape can play an important role in providing shade and wind protection in the campus environment in addition to the stormwater management benefits. Designing landscapes to address functional as well as aesthetic goals can help reduce heat islands (horizontal surfaces such as parking lots that absorb solar radiation), and shade buildings to decrease cooling loads.

LEED-EB at a minimum will address many of the building envelope and other architectural strategies that contribute to energy efficiency.

Future Efficiency Strategies

As UWM looks to future expansion, a detailed energy plan and strategy is needed for all University sites to ensure that energy can be managed and emissions reduced. This will require efficiency improvements, changes to operational and management practices, behavioral changes in the campus population and a transition to renewable energy sources.

Beyond the Kenwood campus, the total expansion is contingent on several strategic decisions that will be made incrementally over the next ten years or more. Preliminarily a projected 1,095,000 square feet is expected in the Innovation Park, the Brewery and the Harbor. Recommendations are provided in the Master Plan for guiding the sustainable development of future UWM sites. The Division of State Facilities Sustainable Facilities Policy and Guidelines offers guidance on the utilization of LEED in the design and construction of State facilities, and in response to Executive Order 145.

Creating new sites such as the Innovation Park will afford UWM the opportunity to establish district energy systems. At a district level waste heat from one facility can be recovered to provide heat or energy needs for an adjacent building. The interrelationship between buildings in a campus setting offer several opportunities that should be considered in future.

Energy Usage Intensity (EUI) Targets 2010-2020

The metric for energy consumption in buildings is Energy Use Intensity (EUI) measured in total British Thermal Units (BTU) per square foot per year. In fiscal year 2008, buildings on the UWM Kenwood campus had an average EUI of 175,000 BTU / SF / year.

As UWM plans future buildings and renovations at any location, energy performance will need to be a consideration. To assist in this effort, EUI targets are recommended for both renovation and new construction by space type. The targets are provided to improve the efficiency of UWM facilities with the understanding that the targets will need to be set higher over time in response to changing technology and advancements in building design.

Minimum EUI targets by space type for future buildings constructed between 2010 to 2020 are as follows:

Renovations: 135,000 BTU / sf / year

New construction: 90,000 BTU / sf / year
Renewable Energy

The State mandate to provide renewable energy is an important consideration for future UWM energy and emissions planning. During the planning process, renewable energy options including wind turbines, photovoltaic solar panels, solar thermal and geothermal systems were examined for the Kenwood campus, all of which proved to be difficult to implement in an urban environment at a meaningful scale. The following summarizes the findings of this investigation and provides a context for considering renewable energy on UWM facilities. It also identifies a renewable energy recommendation for the Kenwood campus.

Solar

Solar – Photovoltaic: Solar Photovoltaics provide one renewable energy option but need to be considered relative to the scale required to meet demand and costs. Kenwood campus peak electrical loads in 2009 totaled 12.7 MW. Generating 8 percent of electrical peak load or about 1 MW would require two acres of collector surface, the area of approximately two Englemann Fields. Such an investment would not reduce the required size of any electrical systems and could potentially offset 3% of the campus electrical use. A better and more practical use of solar energy would be to feature demonstration installations to deliver small amounts of energy. At present, solar photovoltaics are one of the least cost effective ways to invest in renewable energy. The scale required for a meaningful installation and the current costs per kWh are not favorable.

Solar Thermal: Solar Thermal can be utilized for domestic water and/or hydronic space heating. Most installations are found in residential locations where thermal loads are low. UWM building thermal loads are much larger and the size of solar collector plates required to adequately serve hydronic heat load would be not be practical relative to cost and size. Solar thermal systems could be used to supplement domestic hot water needs in UWM residence halls; an approach that has been tried on many campuses.

Wind

Wind turbine project factors include consideration of local and State codes, turbine siting issues, safety, connection configuration, power use and financing strategies. Wind potential is measured in average wind power density in Watts per square meter. The annual wind power density at Kenwood is approximately 100-200 W/m2. Assuming the lower end of the range of 100 W/m2 and a wind turbine at a height of 70 to 80 meters, the wind power available is 110 W/m2. Hub heights for turbines in the 0.5-1.65 MW size range vary from 65 m to 80 m. Turbine “fall” areas must be planned for construction and potential tower collapse. There are no areas on Kenwood campus with a 100 meter diameter circle of clear area.

Horizontal axis turbines also require a clear area to prevent ice being flung off the blades and causing injury. Noise and interference with local electronic transmissions for TV and communications are also a concern when siting a turbine.

Wind power for UWM facilities would be limited to multiple smaller turbines that in general have poorer performance and a higher cost per kWh generated. As with solar power, small demonstration projects can be coordinated with the existing electrical system but would not make a significant impact on the campus renewable energy portfolio and would not be competitive with other approaches to providing renewable energy to campus. A better outcome would be to focus on State wide or University of Wisconsin System initiatives to deliver renewable power such as Retail Wheeling, which is not currently allowed in the State’s tariffs. Retailing wheeling involves siting wind turbines in an area more favorable to wind and is not constrained by the urban context. Wind power generated off-site could be connected to the grid and the UW System would receive credit for this power. Given the size and scale of the concept, it may be better addressed at the UW-System level.

Biomass

Biomass Energy Resources includes municipal wood waste and solid waste. Solid fuel plants require regular deliveries of fuel and on-site storage that is not possible on the Kenwood campus or other sites under consideration.

Geothermal – Lake, district heat pump system

Energy from Lake Michigan may be considered a geothermal source since it acts as a heat sink for UWM cooling loads. UWM has in place a system of pipes to draw water from Lake Michigan and a permit to draw water from the Lake from April through November and return water to the lake after passing through the chiller and turbine condensers. During the winter, the system is not utilized.
SUN AND SHADOW: SOUTHERN EXPOSURE

1. North Precinct
2. Southwest Precinct
3. Southeast Precinct
Kenwood Baseline Energy Consumption

In planning for future energy performance of UWM facilities, Fiscal Year (FY) 2005 consumption data will serve as the baseline comparison per the direction of EO 145. In FY 2005 UWM facilities required 505,520 MMBTU's of heat and 62,634,200 kWh of electricity. Since 2005, the electrical demand and kilowatt-hour usage has increased. Energy consumption in UWM campus buildings is well above other institutions in the University of Wisconsin System, except UW-Madison, and nearly double the campuses with the best performance.

Summary of Major Recommendations for reducing energy consumption at Kenwood

Several strategies are proposed to meet the State’s challenge to conserve energy and develop renewable sources of energy:

1. Efficiency upgrades at the building level offers the opportunity to reduce operating costs. Five buildings are included in an energy performance contract at Kenwood: EMS, Cunningham, Bolton, Enderis, and Curtin. Expected energy savings based on financial grade audits of the buildings will result in an estimated 20% reduction. The estimated savings are as follows:
   - Electrical: 3,802,946 kWh – 27.1%
   - Steam: 21,102 kibs – 31.7%
   - Chilled water: 38,551 tons/day – 37.8%

2. Heat Recovery: Capturing low-grade waste heat at the Central Plant boiler stacks would make better use of fossil fuel energy (dependent of developing demand for low temperature hot water). For new development create a separate distribution system using lower temperature water for building heating.

3. Cooling System: Conduct a comprehensive analysis of extending the Lake intake to a depth where water temperatures are colder and more constant and not subject to fluctuations in surface temperatures. Currently fluctuations in water temperature affect chiller efficiency.

4. Geothermal Energy: Utilize Lake Michigan as a solar collector with the aim of deriving additional value from existing piping and make use of renewable solar energy captured by the Lake. Currently, the Kenwood cooling system utilizes Lake water to absorb heat from campus. This system improves the efficiency of the Central Plant and provides the opportunity to expand the use of Lake water for improving the efficiency of the heating system. This opportunity is significant. It offers a means of bringing renewable, solar energy captured by the Lake to the campus for building heating. This approach would utilize conventional readily available equipment to reduce fuel consumption but would not significantly decrease carbon emissions unless the system included a Combined Heat and Power (CHP) plant. Under this scenario, new development would be served by a separate low temperature hot water distribution loop for building heating.

5. District Heat Pump – investigate the option for an independent district heat pump loop to serve future buildings along Kenwood and Cramer. The proposed system would be a closed loop of direct buried HDPE piping to provide heating energy and remove heat rejected from heat pump systems located in new buildings. It is envisioned that multiple buildings could be served off of one heat pump plant that will act as a heating and cooling module. This approach can reduce total number of distributed machines and take advantage of building diversity to provide a more reliable redundant energy source for buildings. (note: The system would need to incorporate on-campus electric production if Scope 1 and Scope 2 eCo2 emission reductions are to be achieved). New buildings would feature conventional but low-temperature heating water and chilled water loops.

Each of the above strategies requires further study and should be the focus of the University over the coming years as renovation and new construction is proposed.
EMISSIONS

Emissions planning is an area of increased concern on many campuses in North America brought on by a growing awareness of climate change issues among faculty, staff and students.

The UWM Environmental Sustainability Plan addresses emissions reduction targets indirectly through the energy efficiency and conservation targets. More specific guidance is provided in Wisconsin Act 141 which requires that 20% of total annual electricity used by state facilities be satisfied by the purchase of renewable electrical energy by DOA by end of 2011. Based on this guidance, a target greenhouse gas emission reduction of 20% is assumed in the Master Plan, primarily for electricity.

The UWM Environmental Sustainability Plan reinforces the goals of Wisconsin Act 141 through two objectives related to reduction of emissions resulting from UWM operations and activities:

- Secure renewable energy sources to supply 20% of campus use by 2020, and adjust to any other goal set forth by the Governor and State of Wisconsin, through the use of, but not limited to, solar, wind and geothermal energy.
- Reduce consumption of fossil fuel by the University fleet vehicles, through operations scheduling and by vehicle types utilizing the latest fuel efficiency standards/technology and economic feasibility for the campus. (Note: transportation emissions and reduction considerations are addressed in the transportation chapter of this report).

Regulatory Considerations

Wisconsin Act 141 requires State agencies and University Campuses to purchase 10 percent of their energy from renewable sources beginning in fiscal year 2008 and to increase this amount to 20 percent by 2011. Both of these measures support the UWM goal of achieving a 20 percent reduction in CO2 emissions by 2020.

Best Management Practices

The above noted energy efficiency goals and the targets for renewable energy all assist in the reduction of greenhouse gas emissions associated with University activity.
Emission Reduction Recommendations

The methodology for calculating greenhouse gas emissions at UWM was established by the Greenhouse Gas Protocol (GHG Protocol) developed by the World Resources Institute and World Business Council for Sustainable Development. In the base year of 2005, UWM emissions totaled 106,308 MTeCO₂ in three main categories or scopes:

Scope 1: Emissions resulting from stationary consumers of fossil fuel such as the Central Plant as well as the campus fleet of vehicles. In 2005, Scope 1 emissions totaled 26,606 MTeCO₂. (metric tonnes of carbon dioxide equivalents).

Scope 2: Emissions resulting from consumption of purchased electricity. In 2005, Scope 2 emissions totaled 54,679 MTeCO₂. (Note: it is assumed this includes 20% renewable energy content as per the provisions of Wisconsin Act 141).

Scope 3: Emissions resulting for indirect activities attributable to UWM including commuting and air travel purchased by the University. In 2005, the estimated Scope 3 emissions were 35,220 MTeCO₂. (Note: The majority of the Scope 3 emissions are related to commuter travel. There are no data for commuter related CO₂ emissions for 2005. In response, 2008 data were utilized to estimate the 2005 total. In 2008, 25,668 students produced 25,550 MTeCO₂. Assuming that amount of emissions from commuters increased proportionally with other students, emissions in 2005 were likely around 24,250 MTeCO₂ for a student population of 24,387).

Emission Reduction Targets and Strategies at Kenwood

To reduce UWM emissions by 20% from the base line year of 2005 by 2020 will require multiple actions. The 2020 total emissions target (Scopes 1-3) requires a reduction from 106,308 MTeCO₂ to 85,046 MTeCO₂, a decrease of 21,262 MTeCO₂.

In support, several strategies are recommended in the Master Plan.

Scope 1 Emissions Reduction Strategies

Emissions sources owned and controlled by the University will be difficult to reduce as the campus grows in size. Reductions will require greater efficiency in existing facilities and operations. The following are recommended strategies to that end:

1. Reduce Steam Load—through efficiency measures at several existing buildings (improve schedules, reduce outdoor air intake).
2. Heat pump loop for new buildings—create a heat pump system to recover exhaust gases from the Central Plant stacks to provide heat to all new buildings proposed in the Master Plan without additional Scope 1 emissions. A low-temperature hot water loop serving the new buildings would be required to implement this system. This would increase plant efficiency by an estimated 15 percent if all new buildings are 30 percent more efficient than building code as required by EO145. The addition of circulating heat pump loop and heat pumps in buildings will, however, increase Scope 2 emissions.

Scope 2 Emissions Reduction Strategies

Electricity is delivered at a net efficiency of 25-30% and is generated with a mix of coal, hydroelectric and nuclear power has an emissions factor 4 to 5 times that of natural gas. Scope 2 emissions can be reduced at the building level through efficiency and conservation efforts, and improvements in controls and equipment management. Performance Contracts are being utilized to assist with this opportunity.

Over the long-term, federal regulation could require utility companies to switch to lower carbon fuels thereby decreasing emissions in UWM facilities. UWM may need to consider purchasing Renewable Energy Credits (RECS) or Carbon Credits to achieve the desired reduction targets.

Potential reduction strategies include:

1. Reduce building electrical loads / increase efficiency of building operations. To offset the impact of new buildings, existing buildings will need to be more energy efficient. Strategies include energy efficient equipment and fixtures, improvements to air handling systems, operation schedules and more reliance on daylighting.
2. Combined Heat and Power Production – preliminary analysis indicates that use of a natural gas turbine generator combined with heat recovery for campus heating would result in an estimated reduction of 20,000 MTeCO₂ per year. (additional analysis required)
3. Solar Technologies—small scale demonstration projects could reduce emissions slightly.
4. Renewable energy credits could be purchased as last resort.

Scope 3 Emission Reduction Strategies

The majority of the Scope 3 emissions originate from commuter travel to the University or about 23% of the total.

Potential reduction strategies include:

1. Providing more proximate or on-campus housing (700 bed residence hall is estimated to reduce Scope 3 by 730 MTeCO₂ and but would increases Scope 1 and 2 emissions by 1,840 MT)
2. Increasing campus fleet efficiency from 22 to 40 mpg could reduce emissions by almost 50% (small number compared to campus wide emissions)
3. Carpooling—only 3 percent of faculty and 6 percent of staff carpool to campus.
Emissions Reduction Scenarios

To meet the objective of reducing CO₂ emissions by 20%, the three scopes will need to be addressed all of which are intertwined with energy use on the campus. To that end, three scenarios were explored in the Master Planning process to estimate emissions on the Kenwood campus in the target year of 2020. A brief description of the scenarios and the estimated outcomes are summarized as follows:

Scenario 1: Conservation measures implemented in existing buildings per the 2009 Performance Contracts.

Total estimated emissions - 101,495 MTeCO₂

Scenario 2: Construction of new buildings at Kenwood to be more efficient than existing buildings per EO145. The estimated emissions for existing buildings with conservation implemented plus the new buildings being served in the same manner as existing buildings (high pressure steam and chilled water).

Total estimated emissions: 95,318 MTeCO₂

Scenario 3: All buildings are included in conservation/efficiency efforts and new buildings are served from a central heat pump loop.

Total estimated emissions: 96,339 MTeCO₂

As noted, the target emissions level for 2020 is approximately 85,000 MTeCO₂. As summarized above, emissions reductions coupled with preliminary emissions estimates for proposed facilities exceed the target in all three scenarios. To meet the target, UWM will need to consider options for increasing renewable energy use or consider purchasing carbon offsets.

Bibliography

Wasley, James, et al., “UWM as a Zero-Discharge Zone, A stormwater Master Plan for the UWM Campus”, May 2006


IMPLEMENTATION
SEQUENCING AND PRIORITIES

This section summarizes the key implementation recommendations of the Master Plan, including priority projects and preliminary project scopes.

The recommendations balance three key considerations:

- **Campus Priorities**—projects deemed to be priorities in response to the University’s strategic academic and research mission;
- **Sequencing Drivers**—logistical and timing drivers that determine the pace at which facilities can be provided;
- **Capital Budget Planning**—the availability of funding, funding sources, and operating costs.
MASTER PLAN PROJECTS

The Master Plan provides a framework for implementing a number of new facilities, renovation projects and site improvements over the next ten-to-twenty years and beyond. The implementation recommendations of the plan address the near-term priority projects established in response to the above noted considerations as well as those that are expected to be implemented in the mid-to-long term.

As an outcome of a consultation process conducted in conjunction with the University, future projects were considered in relation to:

- Project Bundling / Scope—including the infrastructure, landscape and other improvements associated with the proposed building or facility.
- Funding—the sources available for the project
- Consultation and Approvals Process—the government regulations and approval processes that must be addressed to implement the project
- Miscellaneous considerations—other factors that need to be considered to implement the project.

NEAR-TERM PROJECTS (2010-13)

The table at right summarizes the key projects identified during the planning process in response to current and future space needs, qualitative concerns, enrollment growth and the strategic access and research mission of UWM. The table prioritizes the projects identified for implementation in the near-term, including the preliminary project scope budget. These include:

- The School of Freshwater Science and the Research Vessel
- The Kenwood IRC (Interdisciplinary Research Center)
- The Innovation Park IRC (Wauwatosa)
- The Health Campus for Public, Community and Clinical programs at the Brewery Development

IMPLEMENTATION PROCESS

For each of the projects that resulted from this evaluation, the scope of the project, along with funding, process/approvals, and other miscellaneous considerations was mapped out to provide better direction of all factoring influencing the realization of a project.

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<td>KENWOOD IRC</td>
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<td>INNOVATION PARK IRC</td>
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<td>Kenwood IRC Phase 2</td>
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<td>Library/Teaching/Learning Facility</td>
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<td>Theater/Performing Arts</td>
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<td>Union/Transit Portal/Bookstore</td>
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THE FIRST FOUR PROJECTS LISTED ARE IN PRIORITY ORDER AND ARE KEYED TO THE MAPS AT RIGHT. THE REMAINING PROJECTS LISTED ARE IN ALPHABETICAL ORDER.
School of Freshwater Science

Bundle / Scope
The new School of Freshwater Sciences requires additional and improved facilities to accommodate specialized lab and research needs. At this writing, the new facility is being considered on land currently owned by UWM and directly adjacent to the GLRF facilities on Greenfield Avenue, in the Fifth Ward area of the City. The proposed new construction is viewed as an opportunity to create a new front door to the School. A transit portal will also need to be incorporated to provide amenities for transit services between the new School and other UWM locations. A new research vessel has also been proposed as a means to advancing the mission of the School.

Funding
Funding will be through GFSB and potentially gifts and grants as available.

Approvals
New construction and renovation at the GLRF site will require approval from the BOR / SBC; from the Harbor Commission, the LDRC and the DNR. An EIS will need to be prepared.

Miscellaneous
Redevelopment and continued investment on the GLRF site raises concerns with regard to long term issues of land assembly for future development and potential brownfield contamination issues. Discussions regarding future relocation of the adjacent coal pile to the south and renewal of surrounding City infrastructure are ongoing to protect the long term value of these proposed improvements. The potential for creating a major new research district in Milwaukee provides opportunities for actively engaging City and community support for urban regeneration in the Fifth Ward.

The Kenwood IRC (Interdisciplinary Research Center)

Bundle / Scope
The proposed Kenwood IRC will be located on the site of the Kunkle Building at the corner of Kenwood and Maryland and is intended to accommodate space for Science, Technology, Engineering and Mathematics (STEM). Several interlinked relocation and displacement projects are associated with the proposed facility:

- Children’s Center: To construct the entire set of IRC Buildings proposed along Kenwood Boulevard, the existing Children’s Center located in the Kunkle Building must ultimately be relocated. The initial phase of this development is being planned to allow the building to remain and continue to function as a child care center. Long term options under consideration include: 1) identifying an off-site location on private land; 2) leasing an existing facility; or 3) building a new facility on campus land.
- Parking: Existing surface parking will be permanently displaced by the proposed IRC. Replacement options include: 1) identifying an off-campus location for parking; 2) replacing the parking beneath the proposed building or in a free-standing structure on the campus; and 3) replacing the parking through the acquisition of CSM parking structure.
- IRC Bridge: The current Maryland Avenue Bridge will need to be removed as a result of the development of this project.
- Utilities: the proposed site includes existing steam tunnels and utilities that will need to be expanded / extended to facilitate construction on the site.

Funding
The project will be funded using GFSB and potentially some gifts and grants as available. Parking and child care projects that are considered part of this “bundle” would be funded using program revenue and potentially gifts as available.

Approvals
To implement the initial phase of this project, approvals will be required from the BOR / SBC. A neighborhood consultation process is required, and an EIS will need to be submitted.

The Innovation Park IRC (Wauwatosa)

Bundle / Scope
A new research facility at the Innovation Park is envisioned in response to the emerging research mission of UWM and the opportunities that exist for partnerships with MCW and CHW. As this building is anticipated to be one of the first to be constructed at the Innovation Park, the bundle / scope of work includes initial investments in infrastructure. Specifically, access roadways, parking, bus stops, utilities, stormwater management systems and landscape improvements will be required to support this building and its occupants.

Funding
New facilities at the Innovation Park will be developed by the UWM Real Estate Foundation using a variety of funding sources and development approaches. Following initial development of the infrastructure, GFSB may be used to develop an academic research building.

Approvals
Located in the City of Wauwatosa, development of the Innovation Park site requires approvals for rezoning and for a Planned Unit Development (PUD). It is expected that the land will be acquired by the UWM Foundation from Milwaukee County. The designation of a wildlife habitat located along the eastern boundary of the site and other environmental considerations necessitate that proposed development be coordinated with local environmental authorities and Milwaukee County.

Miscellaneous
The proposed improvements to the “Zoo Interchange” on Highway 45 will impact the Watertown Plank Road Interchange and will affect the proposed site plan for the Innovation Park. Other considerations include the existing historic Eschweiler and Parks Buildings that are protected and will need to be incorporated into the site design and repurposed for new uses. A detailed Innovation Park master plan is being developed to proactively address these site constraints.
Health Campus for Public, Community, and Clinical Programs at the Brewery Development

Bundle / Scope

The proposed Downtown Public Health campus will accommodate a range of Public, Community, and Clinical Health programs. At this writing, the Brewery district was under consideration as a potential location for these programs. Specifically, Building 29, a historic building in the former Pabst Brewery, is being studied for potential renovation. Other project considerations for the Public Health campus include the need for parking, a “transit portal,” and other campus support facilities.

Funding

The source of funds and the development approach are currently evolving for this project. Historic tax credits will also be sought by the developer.

Approvals

In order to move forward with the renovation and repurposing of the Building 29, approvals will be required from the BOR / SBC. Agreements will need to be in place with the developer / donor of the building that address access to parking, investment in infrastructure, streetscape design and proposed uses in the surrounding context. The historic status of Building 29 is being considered, along with corresponding opportunities for Federal and State tax credits.

Miscellaneous

The City Health Department has expressed interest in co-locating on the future UWM Public Health campus, representing a potential opportunity for partnership and collaboration. Consideration should also be given to long term planning for other future partners in the building. It is important to note that any development of public health facilities downtown will need to be considered in the context of other related health facilities proposed in the Kenwood Health IRC and potentially on the Columbia St. Mary’s site.

Mid-to-Long Term Projects

The Master Plan also identifies a series of mid-to-long term projects. These include a range of academic, student support, amenity, infrastructure, housing and athletics / recreation facilities that will be prioritized in the future when funding and programmatic relationships have been developed in more detail.

A general education improvements category of projects is identified to denote a number of renovation projects that can be implemented as existing space is vacated as new facilities become available. As space is vacated, the University will have the opportunity to reorganize departments and units in response to adjacency requirements and the overall goal to establish academic neighborhoods on the Kenwood campus. As part of this reorganization, the University also has the opportunity to address major qualitative issues.

The following summarizes the bundle / scope, funding sources, required approvals and other considerations for implementing these mid-to-long term projects. They are listed in alphabetical order.

Health IRC Kenwood–Phase I

Bundle / Scope

The proposed Health Building at the corner of Cramer and Hartford is proposed to be the first in a series of new academic buildings along the western boundary of the Kenwood Campus. It will be designed to accommodate health-related programs, including growth of the Public Health, Nursing and Social Welfare programs. It will be integrated with the existing Nursing facilities provided in the Cunningham Building. Upon completion of the new facility, a backfill and renovation strategy will be required for space vacated by Nursing, Social Welfare and other affiliated academic programs. The slope conditions on the proposed site (the Cunningham Parking Lot) will facilitate the placement of one or two levels of parking below the proposed building as an important strategy.

Funding

Funding for this project would most likely occur as some combination of GFSB and gifts and grants.

Approvals

Approvals for proceeding with the implementation of the Kenwood Health IRC are required from the BOR / SBC. Consultation will be required with the surrounding neighborhoods and local planning authorities. An EIS for the project will be conducted at project initiation.

Miscellaneous

Pending future acquisition or lease arrangements, UWM may locate future programs on the CSM site. Development on the Cunningham Lot site will need to be planned and designed to coordinate with development on the CSM site. The facility will also need to be planned with consideration of consolidating loading dock functions with EMS and Cunningham. Long term plans for the configuration and use of Engelman Field should also be considered.

Library/ Teaching/ Learning

Bundle / Scope

The master plan includes proposals for transforming the Golda Meir Library through infill development and additions to the existing facility. The intent is to provide additional teaching, learning and library space to address current and future space needs. Beyond the quantitative need for space, the transformation is intended to assist the University in providing a range of new social spaces that support learning. In addition, the Master Plan suggests that each future campus project include the integration of strategically located teaching and learning spaces. The nature of these spaces will range from large lecture halls to more intimate learning environments, and from formal to informal.

Funding

Funding for this project would most likely occur as some combination of GFSB and gifts and grants.

Approvals

BOR / SBC approval is required for the proposed changes to the Library. An EIS is also required.
Student Services

Bundle/Scope

The Master Plan outlines a vision for centralizing and concentrating student services along a central zone / corridor on the Kenwood campus. Specifically, student services will be relocated in new construction at the base of Enderis, Bolton Hall, the Library, and Union to provide convenient access for students.

The reorganization will take several years and will involve a complex set of space moves and back fill renovation opportunities.

Funding

Funding for this project would most likely occur as some combination of GFSB and gifts and grants.

Approvals

Approval for the project is required from the BOR / SBC.

Miscellaneous

Pending potential acquisition of the Columbia St. Mary’s property, other opportunities for developing a student services center in existing space at this location should be explored. This option would eliminate the complexity of space moves associated with the campus proposal, and could lead to a more immediate solution.

Union

Bundle / Scope

Proposed projects associated the Union include renovations, new construction, and general improvements to the existing facility, including internal circulation and wayfinding. While the specific nature and details of the proposed project will be the subject of future architectural and planning studies, the following bundle or scope of improvements are identified:

- Additions are proposed to the south and west of the Union to provide much needed expansion for current and projected space needs.
- West Addition—preliminarily, it is suggested that a new bookstore be located on the west façade of the Union at the corner of Kenwood and Maryland. The intent is to provide a new public use at this important gateway to the campus.
- South Additions—the south additions are intended to provide opportunities for incorporating additional lounge and meeting space as well as a “transit portal.” A new main entrance to the Union is also proposed as part of the additions.
- Transit Portal—to enhance and facilitate the use of shuttle and bus services on the Kenwood campus, a transit portal is proposed on the south of the Union. The intent is to create an indoor conditioned space that can be utilized as a waiting area and social space for users of the transit services. Convenience retail and coffee / food service spaces are proposed within the Portal to enhance the overall experience.
- Loading and Service—the loading and service docks located on the west of the Union at the corner of Kenwood and Maryland are screened and incorporated in the proposed addition to the building.
- Interior renovations—preliminary renovation and planning studies for the Union completed prior to the master plan include recommendations for improving the interior of the Union. An architectural building master plan is required to coordinate interior renovations with the proposed additions to the Union.
- Maryland Avenue Bridge—a new enclosed bridge is proposed to link the circulation spine of the Union with the new IRC facilities located west of Maryland Avenue. The current bridge does not align with proposed building alignment and will be removed. The bridge will include vertical circulation and, potentially, social spaces. One half of the cost of the bridge is allocated to the Union project budget.

Funding:

Funding for this project would occur through an approved increase to segregated student fees and parking fees in the form of PRSB.

Approvals

To move forward with the Union projects, approvals are required for increasing the segregated fees, the Board of Regents and the SBC. Consultation is required with the residents of the adjacent neighborhoods and an Environmental Impact Statement (EIS) will need to be submitted.

Miscellaneous

Other considerations for implementing the Union projects include: developing a strategy for increasing the segregated fee. The proposed Union projects will also need to be coordinated with the new theatre proposed for the Mellencamp site and changes / improvements to Spaight Plaza.

FINANCIAL MODEL

As part of implementation, a financial model is being prepared as a tool to aid the University in future planning. The model will consider the identified priority projects and develop capital and operating costs for each. The model will assist with ongoing implementation decisions.
STEWARDSHIP

The Master Plan is a tool which shapes community, development, planning, space management, and transportation across all UWM campuses and locations in Milwaukee and the region. To fulfill the charge, appropriate stewardship practices and procedures for the administration and maintenance of the Master Plan are critical to make the plan a continuing, renewable endeavor.

The Chancellor has designated that the Vice Chancellor of the Division of Finance and Administrative Affairs will be responsible for stewardship of the plan. The Vice Chancellor of the Division of Finance and Administrative Affairs will consult with members of the Chancellor’s Cabinet, and appropriate campus shared governance bodies on matters related to stewardship of the plan. The primary shared governance body will be the Physical Environment Committee and its subcommittees. In addition, the Provost and Vice Chancellor for Academic Affairs, along with appropriate governance groups, will continually ensure alignment of the Master Plan with UWM’s Academic Plan.
The Physical Environment Committee (PEC)
The current charter of the Physical Environment Committee describes the following as its functions:

- Makes recommendations for the development of the physical environment of the campus consistent with the mission and with the present and future academic programs of the University.
- Recommends a master plan for the development of the campus reflecting priorities in accordance with guidelines established by the committee.
- Recommends the location of new buildings, their interrelationships and aesthetics, and their functional and architectural features.
- Recommends remodeling needs and identifies desirable or undesirable features relevant to future construction.
- Recommends parking and transportation policies.
- Recommends appropriate names for buildings pursuant to established guidelines.

Additionally, the charter describes the broad cross-section of its twenty-three member body as follows:

- Three elected faculty members
- Two faculty members appointed by the University Committee
- Two faculty members appointed by the Chancellor
- One member appointed by the Academic Planning and Budget Committee (APBC)
- Two students
- One academic dean and one administrative officer appointed by the Chancellor
- The chairpersons or their designees of the Academic Program and Curriculum Committee and the Graduate Faculty Council
- Four elected members of the academic staff
- Ex-officio, the Chancellor, the Provost, the Vice Chancellor of Administrative Affairs, the Secretary of the University
- One member of the classified staff, appointed by the Chancellor
- A faculty member is elected chairperson by the committee

The process is conceived to integrate academic, fiscal and physical planning as a comprehensive means of making sound decisions on the development of UWM facilities and improvements.

Master Plan Updates
The Master Plan will be periodically updated to reflect internal and external changes that occur in the life of a dynamic institution such as the University of Wisconsin-Milwaukee. To ensure that the Master Plan remains a valid guide for strategic decision-making, the Vice Chancellor of the Division of Finance and Administrative Affairs will initiate an update of the plan on a regular basis. The frequency of updates will be determined by campus need and desire as well as be consistent with University of Wisconsin System and State of Wisconsin Department of Administration recommendations. Currently, the University of Wisconsin System recommends that all campuses should, at a minimum, perform Master Plan Updates every ten years. Master Plan Updates will be implemented through the State of Wisconsin Department of Administration.

Updates will take into consideration emerging implementation issues, lessons learned from previous implementation projects and new or unforeseen capital investment needs. This includes alignment of the Master Plan with the ongoing engagement of the campus in the biennial State of Wisconsin capital budget process. This involves collaboration and coordination with the University of Wisconsin System, as they receive, prioritize and submit capital budget recommendations for all campuses through the University of Wisconsin System Board of Regents to the State of Wisconsin Department of Administration.
Relationship of the Master Plan to Project Programming, Planning, Design and Implementation

The process is conceived to integrate academic, fiscal and physical planning as a comprehensive means of making sound decisions on the development of UWM facilities and improvements. This inclusive and participatory process engages the broader campus community and shared governance, in particular the Physical Environment Committee (PEC). The Master Plan is a contributing resource to University-wide planning, programming and design processes. In summary, the relationship to such processes is as follows:

- For Space and Facility Management, which is the University project needs assessment phase, the plan provides a framework for assessing space and facility needs in a comprehensive sense. Plan elements defining land use, development capacity and organization of UWM locations, for example, influence the determination of priorities and sequencing in the identification of needs. The plan will assist the campus in the space needs/issues identification phase of the biennial capital budget process, in which all campus units participate and are shared with the Physical Environment Committee (PEC) prior to submission to the University of Wisconsin System.

- For Pre-Design, which is primarily the project planning/programming phase, the plan provides data and contextual information that contribute to objective analysis of location and impact factors to be considered in determining conceptual feasibility. Such factors include land use suitability and compatibility with other uses, program capacity and density, access characteristics, utility characteristics, and other location circumstances particular to given areas of the campus or UWM location. The Physical Environment Committee (PEC) assists in establishing the Work Groups involved in this phase and monitors progress and results.

- For Design and Implementation, the plan provides information with respect to specific site factors such as building placement, massing, service access, pedestrian and open relationships, and other particular circumstances that bear on site planning. Design guidelines similarly inform the investigation of site and design alternatives. The Physical Environment Committee (PEC) assists in the establishing of the Building Committee involved in these phases and monitors progress and results.
ACKNOWLEDGEMENTS

ACADEMIC AND PHYSICAL MASTER PLANNING COMMITTEE
STRUCTURE & MEMBERS (MARCH 2009)

Overview: With the potential of significant investments in resources and physical locations, UWM is setting in place the process of aligning the needs of academic programs over the next several years to needed physical resources.

Executive Leadership Team
Charge: The group will meet 3 to 4 times to establish overall direction, check on the progress of the planning and validate the conclusions developed for the plans prior to their final release.

Carlos Santiago, Chancellor, Chair
James Doyle, Governor and Chair, State Building Commission (delegate)
Michael Morgan, State of Wisconsin DOA Secretary (delegate)
Tom Barrett, Mayor, City of Milwaukee (or delegate)
Michael Spector, Regent, UW System Board of Regents
Kevin Reilly, President, UW System Administration (delegate: David Miller)
Rita Cheng, Provost and Vice Chancellor for Academic Affairs
Patricia Borger, Vice Chancellor for Development
Christy Brown, Vice Chancellor for Finance and Administrative Affairs
David Gilbert, President, UWM Foundation
Tom Luljak, Vice Chancellor, University Relations and Communications
Joan Prince, Vice Chancellor for Partnerships and Innovations
Colin Scanes, Vice Chancellor for Research and Economic Development
Guy Johnson, President, Village of Shorewood
Jill Didier, Mayor, City of Wauwatosa
Scott Walker, County Executive, Milwaukee County
T. Michael Bolger, President, Medical College of Wisconsin

Campus Planning Steering Committee
Charge: This is the primary steering committee for the planning process and will meet on a regular basis to review the planning process. Included in this review will be meetings with the physical Master Plan consultants (approximately 10 times) to review draft proposals and provide guidance on the Master Plan process. The steering committee will make regular reports to the chancellor’s executive staff, the academic deans’ council, the faculty senate, the academic staff senate, and the student senate. This group will also review the final Master Plan and make a recommendation to the Chancellor for approval.

Rita Cheng, Provost, Chair, and Vice Chancellor for Academic Affairs
Christy Brown, Vice Chancellor for Finance and Administrative Affairs, Vice Chair
Colin Scanes, Vice Chancellor for Research
Tom Luljak, Vice Chancellor for University Relations and Communications
Cindy Walker, University Committee
Jon Lenichek, Academic Staff Committee
Robert Greenstreet, Academic Deans Council
Tyler Draheim, President, Student Association
Rob Yeo, Chair, Academic Planning and Budget Committee
Mary K. Madsen, Chair, Physical Environment Committee
Simone Conceicao, Chair, Information Technology Policy Committee
John Krezoski, Chair, Campus Security Committee
Winston Van Horne, Chair, Libraries Committee
John NdOn, Representative, Academic Program and Curriculum Committee
Doug Cherkauer, Chair, Graduate Faculty Committee
Steve McMurtry, Representative, Research Policy Committee
Rhonda Montgomery, Representative, Liberal Arts and Professions Subcommittee
Ron Perez, Representative, Engineering and Basic Science Subcommittee
Michael Fendrick, Representative, Health Disciplines Subcommittee
Campus Planning Coordinating Committee
Charge: The Coordinating Committee will meet on a monthly basis to coordinate the work of the three subcommittees as they pursue the development of the academic drivers for the Master Plan, the physical master itself and financial implications of the plan. The committee will structure itself to focus on these three areas of planning as it analyzes planning data, brainstorms solutions and provides input into the planning update process. The Coordinating Committee is the main working group for the plan and the sounding board for technical ideas and draft recommendations.

Coordinating Committee
Robert Greenstreet, Dean, Architecture and Urban Planning – Chair
Claude Schuttey–Director, University Architects/Planning & Transportation – Vice Chair
Michael Powell, Associate Vice Chancellor for Diversity and Climate
Mark Harris, delegate for Vice Chancellor for Research and Dean of the Graduate School
Gwat Lie, delegate for Vice Chancellor for Research and Dean of the Graduate School
Jim Hill, delegate for Vice Chancellor of Student Affairs
Laura Glawe, delegate for Vice Chancellor for University Relations
Gesele Durham–Director, Assessment & Institutional Research
Don Weill, Interim Director of Business and Financial Services
Lee Ann Garrison (PSOA), chair, Liberal Arts and Professions Subcommittee
Cindy Walker, Chair, Transportation Subcommittee of Physical Environment Committee
Alan Horowitz (CEAS), chair, Engineering and Basic Science Subcommittee
Mary Lou Gelfer (CHS), chair, Health Disciplines Subcommittee
Brian Wishne, SARUP, Faculty Senate representative for the Division of Professions
Kristen Ruggeiro, L&S, Faculty Senate representative for the Division of Humanities
Tien-Chien Jen, CEAS, Faculty Senate representative for the Division of Natural Sciences
Vincent Adesso, L&S, Faculty Senate representative for the Division of Social Sciences
Susan Stalewski, CHS, Academic Staff Senate instructional representatives
Pauline Jascur, TRIO & Pre-College, Academic Staff Senate non-instructional representative
Swaranjit Arora, Faculty Representative, Academic Planning & Budget Committee
Harvey Rabinowitz, Faculty Representative, Physical Environment Committee
Suzanne Falco, Chair, Academic Program and Curriculum Committee
Razia Azen, Faculty Representative, Graduate Faculty Committee
Prasenjit Guptasarma, Chair, Research Policy Committee

Charge of the Sub-committees
Coordinating Committee subcommittees are charged to develop academic drivers for the Master Plan, the physical master itself and financial implications of the plan. The subcommittees will address locations and physical resources for teaching and learning programs, research programming, student services, campus life, diversity, and key infrastructure needs. Faculty and academic staff members will be selected utilizing the appropriate school/college academic planning committees, faculty governance groups and the deans’ council.

Liberal Arts and Professions Sub-committee
Lee Ann Garrison, CHAIR, Faculty Representative of Peck School of the Arts
Rhonda Montgomery, Faculty Representative of Helen Bader School of Social Welfare
Sarah Freeman, Faculty Representative of Lubar School of Business
Simone Conceicao, Faculty Representative of School of Education
Jin Zhang, Faculty Representative of School of Information Studies
Peter Geissinger, Faculty Representative of College of Letters and Science, Natural Sciences
Moshen Bahmani-Oskoee, Faculty Representative of Letters and Science, Social Sciences
Helena Pycior, Faculty Representative of Letters and Science, Humanities
Christine Scott (SARUP), Academic Staff Representative
Richard Meadows, Dean, College of Letters and Science
Stan Stojkovic, Dean, Helen Bader School of Social Welfare
Kanti Prasad, Dean, Lubar School of Business
Alfonzo Thurman, Dean, School of Education
Wade Hobgood, Dean, Peck School of the Arts
Acknowledgements

Johannes Britz, Dean, School of Information Studies
Gil Snyder (representing Dean Greenstreet), School of Architecture and Urban Planning
Gwat Lie, Associate Dean, Graduate School
Cindy Piercy (L&S), Representative of academic/student support services
Representative members of the planning support team

Engineering and Natural Sciences Subcommittee
Alan Horowitz CHAIR, CEAS, Civil Engineering Faculty Representative
Chie Tai Law, CEAS, Electrical Engineering Faculty Representative
Susan McRoy, CEAS, Computer Science Faculty Representative
Dilano Saldin, L&S, Physics Faculty Representative
Reinhold Hutz, L&S, BioSci Faculty Representative
Marjorie Piechowski, CEAS, Academic Staff Representative
Michael Lovell, Dean, College of Engineering and Applied Science
Karen Brucks, Associate Dean, Letters and Science
Mark Harris, Associate Dean, Graduate School
Jennie Klumpp, CEAS, Representative of academic/student support services
Representative members of the planning support team

Health Disciplines Subcommittee
Mary Lou Gelfer CHAIR, CHS, Faculty Representative
David Petering, L&S, Faculty Representative
Michael Fendrich, HBSSW, Faculty Representative
Phyllis King, Associate Dean, CHS
Beth Rodgers, CON, Faculty Representative
Ed Rodriguez, CON, Academic Staff Representative
Sally Lundeen, Dean, College of Nursing
Patricia Arredondo, Interim Dean, School of Continuing Education
Steve Percy, Coordinator, Public Health Planning Council
Mark Harris, Associate Dean, Graduate School
Cynthia Brown, CHS, Representative of academic/student support services
Representative members of the planning support team

Campus & Community Constituent Groups
The following is a list of various stakeholder groups that have been consulted during the Master Planning process.

Academic Deans Council
Academic Staff Senate
ADA Advisory Committee
Alumni Association
Athletics
Auxiliary Services (Union, etc)
Board of Visitors
Facilities Management
Children’s Center
City of Milwaukee Planning Department
Council for Inclusion
Department Chairs
Enrollment Management Steering Committee
General Student population (forum or town hall meeting)
Faculty Senate
Foundation Board; Development Office
Human Resources
Legislative Offices
Multicultural Student Center Advisory Committee
Neighborhood Associations
Neighborhood Relations (in University Relations)
Norris Health Center
Online Program Council
Recruitment and Outreach
School of Architecture and Urban Planning Faculty
Student Accessibility Center
Student Association
Sandburg Hall (Kenilworth and Riverview) Administrative Council
Transportation Subcommittee
Union representatives
University Committee (representing the Faculty Senate)
University Safety & Assurances Department
Physical Master Plan Team
This is the team of private consultants facilitating and preparing the Master Plan for UW-Milwaukee.

Hammel, Green and Abrahamson, Inc. (HGA), Milwaukee

*In association with:*
Sasaki Associates, Inc., Watertown, MA

Planning Support Team
This is a working group of UW-Milwaukee, UW-System, and State of Wisconsin staff working directly on the project with the committees and consultants, coordinating all meetings and facilitating development of the entire project.

Patricia Arredondo, Associate Vice Chancellor, Academic Affairs and Dean of Graduate School
David Danielson, Director, Facility Services
Christopher Gluesing, Assistant Director, University Architects/Planning & Transportation
Jon Jenson, Project Manager, State of Wisconsin Department of Administration
Cindy Kluge, Interim Coordinator, Resource Analysis
Gwat-Yong Lie, Associate Dean for Academic Programs and Student Services, Graduate School
Laura Pedrick, Assistant to the Provost for Strategic Initiatives
Claude Schuttey, Director, University Architects/Planning & Transportation
Dennis Stecker, Manager for Space Analysis, University Architects/Planning & Transportation
Kate Sullivan, Director of Facilities Planning, UW-System
Dev Venugopalan, Associate Vice Chancellor, Academic Affairs
Amy Watson, Communications Project Manager, University Relations
Ruth Williams, Associate Vice Chancellor, Academic Affairs