

March 2006

University of Wisconsin - Madison Lakeshore Nature Preserve Master Plan



Cover Photographs (Left to Right)

- Grasses at Biocore Prairie in Autumn
- Volunteer Work Party at Muir Knoll
- Class of 1918 Marsh
- Lake Mendota Shoreline

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UW-Madison Lakeshore Nature Preserve

Adopted March, 2006

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INTRODUCTION

Overview

A Plan for UW-Madison's Lakeshore Nature Preserve

The University of Wisconsin-Madison Lakeshore Nature Preserve permanently protects the undeveloped lands along the shore of Lake Mendota where members of the campus community have long experienced the intellectual and aesthetic benefits of interacting with the natural world. The Preserve shelters biologically significant plant and animal communities for teaching, research, outreach, and environmentally sensitive use; and safeguards beloved cultural landscape features. The Preserve is as essential to the university as its lecture halls, laboratories, and playing fields. It contributes to a powerful sense of place and fosters an ethic of stewardship to promote mutually beneficial relationships between humans and the rest of nature.

—*Lakeshore Nature Preserve Mission Statement, June 7, 2005*

This Master Plan for one of UW-Madison's most beloved campus landscapes was prepared under the guidance of the Lakeshore Nature Preserve Committee. As outlined in the Committee's Guiding Principles, "it is the responsibility of the Lakeshore Nature Preserve Committee to develop policies and guidelines for the stewardship of the Lakeshore Nature Preserve that protect and interpret the biological and cultural resources of the landscape in conjunction with the UW-Madison's educational mission." The Committee works to ensure that these natural communities and cultural landscapes pass unimpaired for the enjoyment of future generations. The Committee consists of University of Wisconsin-Madison faculty, staff, and students.

Key partners in developing the Master Plan were the UW-Madison campus community; the UW-Madison Division of Facilities Planning and Management; the University of Wisconsin Foundation; and the Friends of the Lakeshore Nature Preserve. The Friends of the Lakeshore Nature Preserve in particular plays a special role as advocate for the Preserve. It is a volunteer, non-profit organization comprised of dedicated individuals with close ties to campus, many of whom contribute regularly to the stewardship of the Preserve. The group promotes community involvement through volunteer field work, educational programs, fundraising, and its own Preserve! newsletter.

Finally, it should be noted that the Lakeshore Nature Preserve has benefited enormously from the generosity of people who have contributed both time and money to its care and stewardship. As noted below, the Frautschi family played a critical role in donating to the university the last remaining parcel that completed the continuous green belt of lakeshore land that now defines the Preserve. The Brittingham family made a key early gift in helping assemble these lands, and various alumni classes—especially the Classes of 1918, 1922, and 1955—have been extraordinarily generous in supporting major improvements in the Preserve, including the restoration of the Class

of 1918 Marsh. Individual donors have made smaller gifts too numerous to mention, gifts not just of money but of time and care. Without the volunteer labors of the Friends of the Lakeshore Nature Preserve, the Preserve would not be what it is today. We very much hope that this master plan will offer a vision for the future that will inspire all who care about the Lakeshore Nature Preserve to work hard and give generously to make this dream a reality.

Purpose and Goals of this Master Plan

This master plan offers a framework for managing the Lakeshore Nature Preserve over the next decade. The plan seeks to maintain and improve the biotic health of Preserve lands and ecosystems while enhancing the Preserve's educational and recreational benefits for all who visit it. The plan analyzes the biological and cultural resources of the Preserve to propose site-specific designs and strategies for meeting these twin goals of protecting the resources of the Preserve while enhancing the many benefits visitors derive from them.

The Lakeshore Nature Preserve and its Context

Physical Context

The Lakeshore Nature Preserve consists of about 300 acres of the 933-acre UW-Madison campus. Located along the shore of Lake Mendota, which plays such a distinctive role in defining the entire campus landscape, the Preserve includes such beloved Madison places as Picnic Point and the Howard Temin Lakeshore Path. The Preserve stretches along the Mendota shoreline from Muir Woods around University Bay to the Class of 1918 Marsh and the tip of Picnic Point, and from there to the Biocore Prairie and Frautschi Point all the way to Big Woods and Eagle Heights Woods, on the west boundary of the campus with the Village of Shorewood Hills.

The Preserve includes a complex matrix of forests, prairies, wetlands, and former savanna ecosystems, and has as one of its most important goals the stewardship of the organisms and biophysical processes of these different habitats. It protects cultural resources that include Native American mounds and archaeological sites reaching hundreds and thousands of years into the past, as well as artifacts and structures revealing the more recent history of human land use over the past two centuries. Finally, the Preserve includes working landscapes that support the ongoing educational mission of the university, ranging from outdoor kilns to the Physical Plant Staging Area to one of the oldest, largest, and most culturally diverse community gardens in the United States.

Historical Context

The Lakeshore Nature Preserve has a complex history because its various parts each have quite distinctive pasts. The historic vegetation cover can be traced back to survey records that suggest a savanna-like landscape, with prairies and wetlands intermingled with open forests. Human use and impacts have been prevalent throughout the Preserve, leaving evidence of campsites and burial mounds; remnant walls and building foundations; and various recreational routes and structures.

The University of Wisconsin-Madison acquired the parcels of land comprising the Preserve over the past century and a half. Some, such as Muir Woods, were part of the campus landscape from the beginning; others, such as Picnic Point and Frautschi Point, were only acquired in the twentieth century with the understanding that they be held and managed as permanent natural areas for the benefit of campus and community alike. Management of these lands, formerly known as the Campus Natural Areas, was the responsibility of the UW-Madison Arboretum until 2000, when the present governance committee came into being. The Lakeshore Nature Preserve was given its current name in 2005 to declare more clearly its location, its integrity as a single unit, and its protected status as a natural green space in the midst of an otherwise urban campus. The new name not only signals its location along the shore of Lake Mendota, but declares the university's intention of permanently preserving this special natural area for future generations.



Extent of the UW-Madison Lakeshore Nature Preserve

Previous Studies and Planning Efforts

Several studies and plans generated for the Lakeshore Nature Preserve have informed this study. They include:

- Kline-Bader Campus Natural Areas Management Plan, 1996
- Campus Natural Areas existing biological and vegetation analysis, prepared by the Biology Subcommittee of the Campus Natural Areas Committee, 2003
- Campus Natural Areas biological community map, prepared by the Biology Subcommittee of the Campus Natural Areas Committee, 2003-2005
- UW-Madison, Cultural Resources Report, 2005
- Report of the Biology Subcommittee of the Campus Natural Areas Committee, Revised - June 2005.
- Report of the Social/User Subcommittee of the Campus Natural Areas Committee, 2003
- PowerPoint Presentation of the Infrastructure Subcommittee of the Campus Natural Areas Committee, 2003
- A Phase I Archaeological Survey of Muir Knoll, August, 2003
- 2004 Archaeological Investigations on the University of Wisconsin-Madison Campus, City of Madison, Dane County, Wisconsin
- Picnic Point, UW-Madison Campus, Dane County, Wisconsin: Results of a Phase I Archaeological Survey – July 2001
- Roma Lenehan, "Breeding Bird Diversity in an Urban Natural Area: University of Wisconsin-Madison Campus Natural Areas," May 2003

Master Plan Process

The Master Plan process was initiated by John Harrington during his tenure as chair of what was then called the Campus Natural Areas Committee. Harrington assigned three Subcommittees the task of developing general management principles for the biology, infrastructure, and user activities associated with these lands. After Ken Saiki Design was hired in 2004 as the consultant team to guide the master plan process, a series of focus group sessions moved discussions forward during November and December of 2004. The consultant team facilitated discussions with seven different campus stakeholder groups during an intensive one-day series of meetings, and followed up with additional sessions to seek input from other stakeholders.

Stakeholders

Stakeholder groups that provided input in the master planning process include:

- UW-Madison faculty, staff, and students
- UW-Madison Lakeshore Nature Preserve Committee
- Friends of the Lakeshore Nature Preserve
- UW-Madison Facilities Planning & Management staff
- UW-Madison Physical Plant staff
- UW-Madison Administration
- UW-Madison Campus Police
- UW-Madison Housing staff and residents
- UW-Madison Permit holders and faculty using the Preserve for curriculum needs
- UW-Madison alumni
- Madison area residents

Public Input

A public input forum was held on April 26, 2005 to offer a brief overview of the master planning process and to encourage a dialogue about key issues such as biological restoration, trail designs, and physical infrastructure. A follow-up public forum was held on September 20, 2005 to elicit feedback regarding the preliminary master plan and conceptual site-specific recommendations. A final public presentation was made on February 15, 2006 to present the master plan findings and recommendations.

Relationship to other planning initiatives

UW-Madison, 2005 Cultural Landscape Resources Report: The Cultural Landscape Resources Project inventoried and identified cultural icons and landscapes throughout the UW-Madison campus. The field investigation for this study encompassed lands held within the Lakeshore Nature Preserve and identifies key views, view sheds, and cultural and archaeological resources. These special resources within the Lakeshore Nature Preserve were mapped as a part of the Preserve Master Plan and have significantly influenced the siting of high-intensity use areas and trail locations.

UW-Madison 2005 Comprehensive Master Plan Update: The Lakeshore Nature Preserve Master Plan planning process has fortuitously coincided with an update to the University of Wisconsin-Madison Campus Master Plan. The Campus Master Plan has gone beyond previous campus master plans by placing much greater emphasis on the Lakeshore Nature Preserve as a defining feature of the campus. This Campus Master Plan Update has—very happily—incorporated new land into the Preserve and works with the guiding principles of the Lakeshore Nature Preserve Master Plan to enhance connections between the Preserve and the rest of campus. The Campus Master Plan makes recommendations for views and view sheds along the Howard Temin Lakeshore Path that are supported by the Lakeshore Nature Preserve Master Plan.

The 2005 Campus Master Plan Planning Principles reflect and support the core values of the Lakeshore Nature Preserve. The two plans agree that natural areas along the shore of Lake Mendota help define the UW-Madison campus in the following key ways:

- **A Spectacular Setting-** giving UW-Madison a unique lakefront setting defined by beautiful open spaces.
- **Experience of Place-** creating and preserving spaces for people to share their knowledge and experiences.
- **Connections-** enhancing connections between the built environment of the campus and its outdoor spaces.
- **Edges and Boundaries-** enhancing campus boundaries and edges to encourage a shared awareness of natural resources and a powerful sense of community.
- **Regional Community-** embodying life-long learning and community awareness of regional planning, economic growth, and environmental impacts.
- **World beyond-** linking the university to the broader city, state, and planet by helping students understand their place in a larger world.

MASTER PLAN VISION AND GUIDING PRINCIPLES

This Master Plan seeks consistently to embody the following guiding principles of the Lakeshore Nature Preserve Committee:

Lakeshore Nature Preserve Committee Mission (adopted 24 March, '04; revised 7 June, '05)

It is the responsibility of the Lakeshore Nature Preserve Committee to develop policies and guidelines for the stewardship of the Lakeshore Nature Preserve that protect and interpret the biological and cultural resources of the landscape in conjunction with the UW-Madison's educational mission.

Three primary goals guide the Committee in this endeavor:

- Preserve, restore, and interpret natural plant and animal communities in conjunction with UW-Madison's educational mission;
- Protect signature landscapes and views that are vital to defining the university campus and the city of Madison;
- Establish management priorities that maximize educational benefits while minimizing the impacts of educational use.

Lakeshore Nature Preserve Committee Guiding Principles

The underlying principles of ecology and conservation biology lead to the following important planning and management objectives for the Lakeshore Nature Preserve:

- Preservation and restoration of ecological communities historically present and appropriate to the site
- Creation of large blocks of contiguous natural landscape
- Planning for appropriate transitions along edges
- Maintenance of contiguous areas of like use to minimize conflicts
- Consideration of land beyond the borders of the Preserve
- Maintenance and creation of corridors and linkages to natural communities
- Attention to biodiversity within each community type
- Control of invasive species
- Monitoring and record keeping to assure effective management

The Lakeshore Nature Preserve should be a showcase for rethinking a city's relationship to the natural systems in which it is embedded to make human and non-human communities more mutually supportive and sustainable.

The Preserve should be interpreted so that visitors will better understand the history of these lands, their human uses, and the changing natural communities that have existed here over time.

The Preserve should provide a retreat where people can contemplate their past, present, and future place in the larger web of life.

The Preserve should offer access to wild, non-human nature for the campus community.

Infrastructure elements in the Lakeshore Nature Preserve should:

- Be designed to protect the natural and cultural resources of the Preserve.
- Be designed to protect the safety of users.
- Minimize adverse physical, biological, and aesthetic impacts.
- Serve multiple uses whenever possible.
- Support the biological diversity that is fundamental to the educational value of the Preserve.
- Be sustainable and environmentally friendly.

Management techniques should as much as possible mimic natural processes.

Artificial structures should be kept to a minimum, blending in space, form, and color with the natural setting.

Disturbance and compaction of the soil should be minimized to discourage invasive vegetation and erosion.

Trails should provide appropriate access while minimizing fragmentation of biological communities.

Motorized traffic, noisy machinery, and oversized equipment should be kept to a minimum.

Infrastructure should be designed to minimize required maintenance in accordance with the previous guiding principles.

In determining the ecological community appropriate to a site, the existing vegetation as well as historical and pre-European data should be considered.

Major changes in community physiognomy (e.g., forest to grassland) will be undertaken only after careful consideration and stakeholder input.

Planning recommendations should only be implemented after careful study and on-site evaluation; all design and management should be adaptive, evolving in an iterative way to accommodate new knowledge and data.

SITE ANALYSIS — ISSUES AND OPPORTUNITIES

Overview — Master Plan Approach to Site Analysis

A series of site analyses were produced and refined that depict existing site features and influences in the Lakeshore Nature Preserve. The information used to produce these diagrams was derived from a combination of field visits and information collected from other sources, such as the 2005 Cultural Landscape Resources Report and the Report of the Biology Subcommittee of the Campus Natural Areas Committee, May 2005. The analytical diagrams are presented here as individual elements within a larger frame; in the pages that follow, they are filtered and layered in a variety of ways to produce the master plan recommendations.

Existing Vegetation

The principal natural communities that have survived substantially intact after 160 years of post-European human actions are small patches of forest such as Eagle Heights Woods and Big Woods, and wetlands such as Picnic Point Marsh and University Bay Marsh. These pockets of relatively undisturbed vegetation harbor seed banks that, if given the right conditions, can help restore native plant communities. The degradation of many habitats within the Lakeshore Nature Preserve can be attributed to a variety of sources, including historic land use and management, runoff from surrounding urban developments, and the proliferation of invasive species.

The map of existing vegetation depicts a diversity of plant communities within the Lakeshore Nature Preserve. Several are worth noting in particular: the area of prairie being restored through efforts by the Biocore program; areas deemed as remnant lakeshore woods; the restored Class of 1918 Marsh; and the few mature open-grown oak trees that are scattered throughout the Preserve. These open-grown oaks are of special interest, and this plan proposes that they can become the core of a restored oak savanna.

Invasive species have become a serious concern throughout the Preserve as well as on adjacent lands. Invasive plants—including honeysuckle, buckthorn, garlic mustard, and black locust—are prevalent in many parts of the Preserve. The impact of these invasives on native plant and animal communities is far-reaching and includes the following.

Invasive plants:

- Compete with native vegetation for sunlight and water;
- Interfere with regeneration of native plants;
- Compete for pollinators;
- Proliferate shallow root systems that exacerbate soil erosion;
- Displace rare plant species;
- Replace diverse plant communities with monocultures;
- Encourage dense thickets that obstruct prime views; and
- Increase soil exposure and further encourage erosion.



Buckthorn

Photo from UW-Madison Herbarium
www.botany.wisc.edu/wisflora



Black Locust

Photo from *The Dutch Tree Guide*
www.bomengids.nl/uk



Honeysuckle

Photo from the University of Arkansas
www.uark.edu

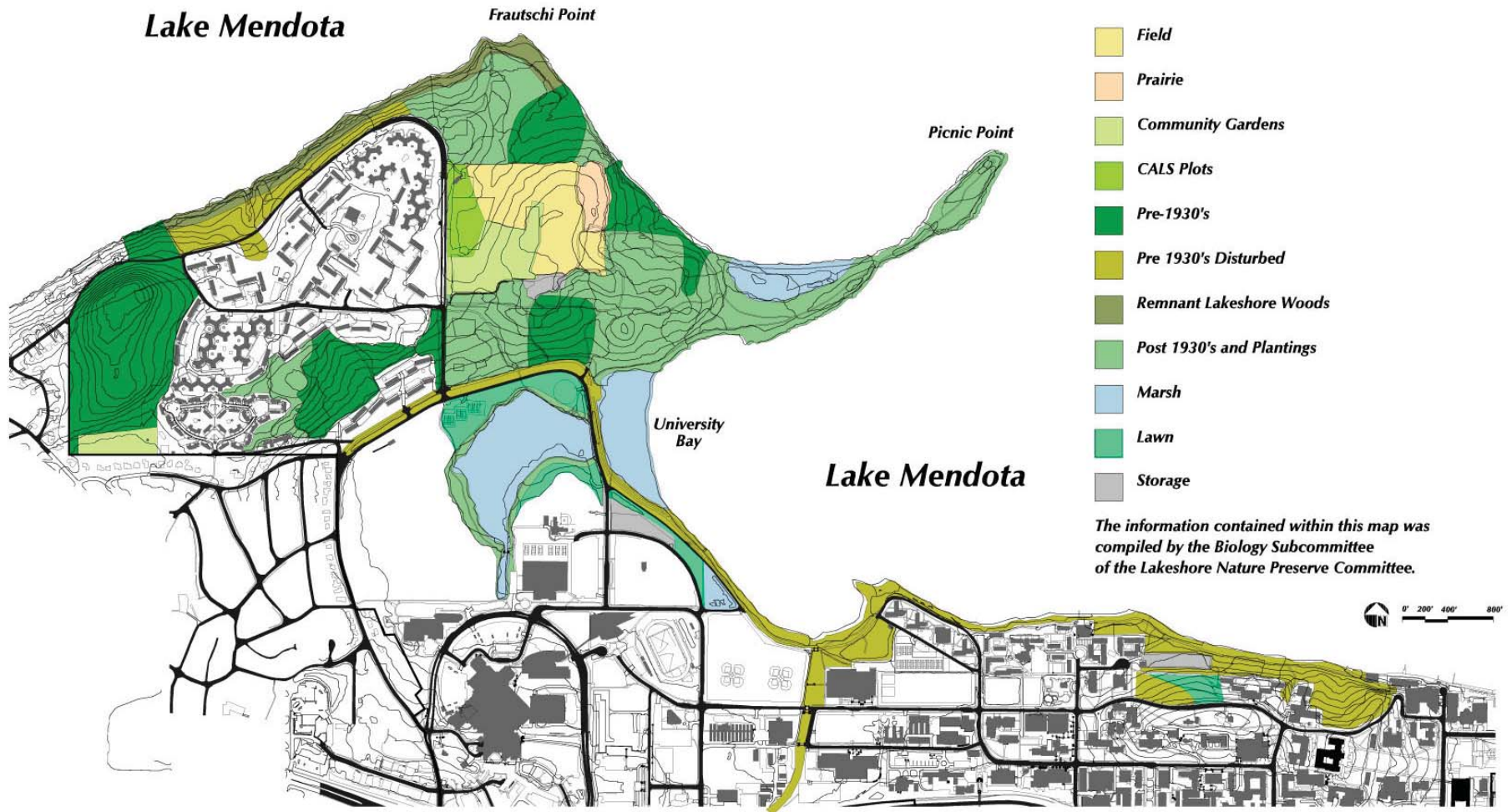


Garlic Mustard

Photo from Invasive Species Weblog
www.invasivespecies.blogspot.com

Existing Vegetation

Lake Mendota



Woodland Ephemerals
Photo courtesy of Glenda Denniston



Restored Savanna



Restored Prairie
Photo courtesy of Glenda Denniston

Hydrologic Characteristics and Impacts

Hydrology and hydrologic process within and around the Preserve greatly influence the quality and health of its diverse biotic communities. A significant ridgeline runs east-west through the northern portion of the Preserve, bisecting Eagle Heights Woods, Bills Woods, and the base of Picnic Point. Areas north of the ridgeline drain north while areas south drain toward University Bay Drive, where grassy swales infiltrate and conduct water to the lake near University Bay Marsh.

Gullies, rivulets, and outwash flows, with their attendant erosion, are the result of changes in the vegetation and built environment of the Preserve. Large areas under roof and asphalt in the surrounding area convey excessive storm water downhill rather than infiltrating it at the source. A lack of ground layer vegetation in many of the wooded areas throughout the Preserve allows surface water to erode organic material in the soil. Concentrated areas of storm water runoff from culverts and pipes create point-source erosion problems. The physical impacts of these several processes can be seen throughout the Preserve.

Additionally, the Willow Creek Watershed—which is much larger than most people realize—has a substantial impact on the quality of water in Willow Creek and University Bay. The physical boundaries of this watershed extend well beyond the UW-Madison campus and include much of west-central Madison. Storm water from this large urban area conveys with it pollutants from city streets, waste from yards and parking lots, and sediment from construction sites. The hydrologic graph of the Willow Creek Corridor shows sharp peaks and valleys, indicative of major drainage events during which millions of gallons of storm water enter the Willow Creek system and ultimately end up in University Bay. Aerial photographs illustrate the gradual enlargement of the silt plume that has formed in University Bay, a problem that cannot be addressed in this plan but that certainly requires attention in the future.



Willow Creek Watershed

Illustration Courtesy of Cassandra Garcia

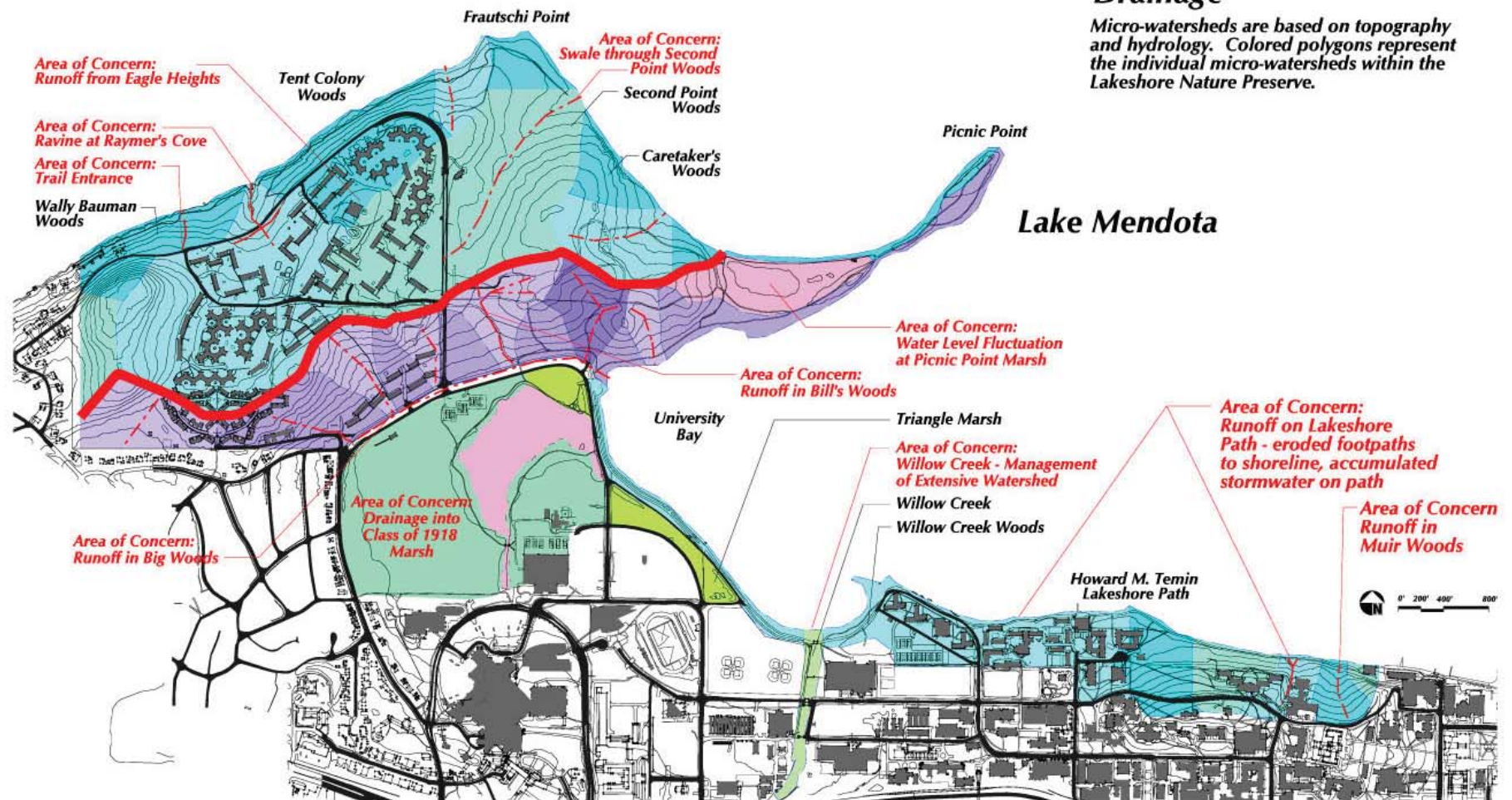


Stormwater Remediation at the Raymer's Cove Ravine



Stormwater Remediation adjacent to University Bay Drive

Existing Hydrology and Areas of Concern



Ravine at Raymer's Cove — Deteriorating Outfall Due to Excessive Volume and Velocity of Storm Runoff

Cultural Resources Inventory

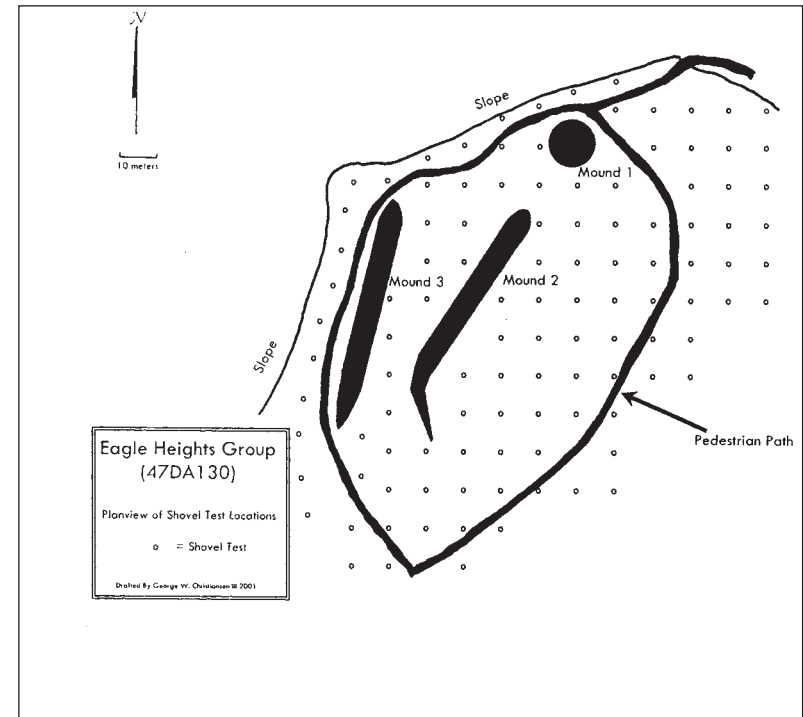
Native American Mounds and Habitation Sites

Human beings have influenced the lands of the Lakeshore Nature Preserve for millennia. Native American cultural resources within the Preserve range from archaeological sites dating back 12,000 years to present-day sites that continue to be important places of spiritual practice.

Ancient Native American burial mound sites are scattered across the campus but are primarily located within the boundaries of the Lakeshore Nature Preserve. This collection of sacred sites includes several unique effigy-type burial mounds. Indeed, UW-Madison has management responsibility for more effigy mounds than any other university in the world.

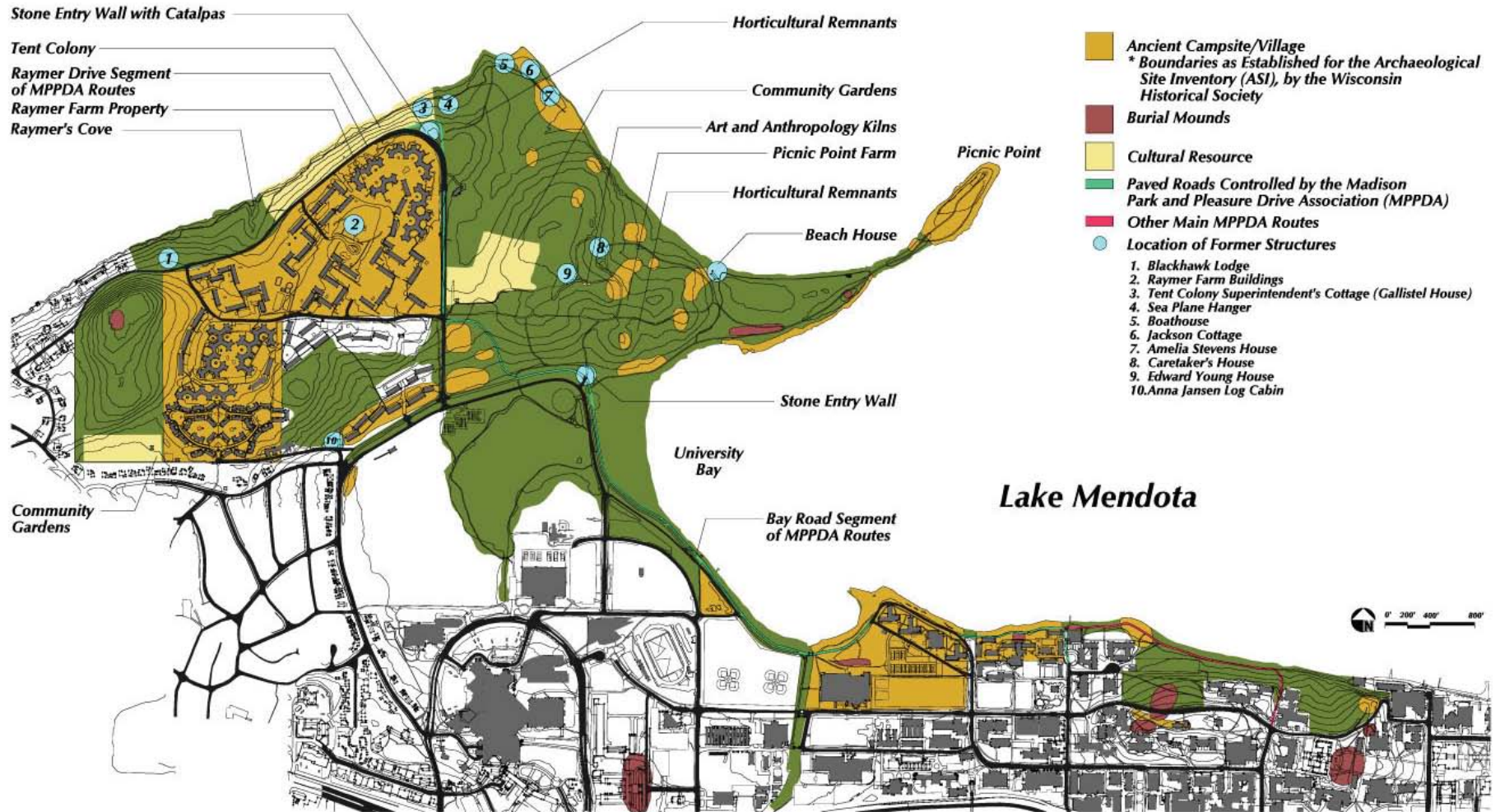
Cultural resource field surveys, conducted as part of the 2005 Cultural Landscape Project, have identified several ancient habitation sites within the Preserve that had been previously unknown to archaeologists. While these studies examined approximately 100 acres of campus lands, not all areas within the Preserve have been systematically surveyed. There is good reason to expect that additional field research would identify more archaeological sites. Any physical developments within the Preserve should be preceded by an examination of the archaeological record to determine if additional field survey work would be appropriate.

A few notable burial mound sites are located immediately adjacent to existing trail systems, and the gradual widening of trails from heavy use threatens to encroach upon and damage these mounds. Lack of signage and interpretive materials identifying the mounds as archaeological sites means that Preserve visitors are often unaware that they are sitting, standing, or walking on these ancient features. The mounds should be interpreted more thoughtfully for visitors, and access should be managed to avoid damage.



Eagle Heights Mound Group
Diagram by George Christiansen, Great Lakes Archaeological Research Center

Cultural Resources



Native Vegetation at Eagle Heights Mound



Effigy Mound Protection within the Preserve

Euro-American Sites and Historic Remnants

Euro-American settlement and land use has significantly shaped the current landscape of the Preserve. Grazing and cropping replaced native plant species and encouraged drastically altered patterns of vegetation. Because the Preserve was comprised of many different parcels, each with a unique history of ownership and management, it is difficult to generalize about their overall use or remnant character. The Final Report and Recommendations from the Campus Natural Areas (CNA) Planning Task Force (October, 1999) provides snapshot histories of the following parcels:

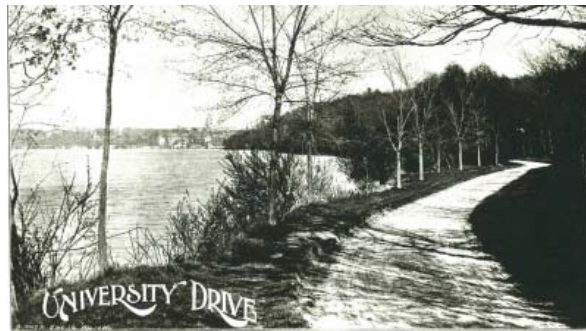
- **Muir Woods:** This area, named for naturalist John Muir, who once gathered firewood beneath the forest canopy, is a remnant of a wooded area that once occupied all of Bascom Hill. A ski jump at one time existed on Muir Knoll; other structures include the Carillon (erected in 1935) and the Social Sciences Building, the controversial construction of which in 1962 led to some of the earliest efforts to protect the easternmost lands of what is now the Lakeshore Nature Preserve.
- **Howard Temin Lakeshore Path:** This path of fine limestone gravel began as a route for the Madison Parks and Pleasure Drive Association (MPPDA), and has since become one of the defining symbols of the UW-Madison campus.

- **Willow Creek:** The original bridge that crosses this corridor near Lake Mendota was built by the MPPDA in 1892-94, linking it to additional routes along the current Lake Mendota Drive. The creek was channelized from a meandering stream in the early twentieth century.
- **Eagle Heights Woods:** This site was part of the George Raymer farmstead starting in 1887. Much of the farm was eventually used by the College of Agriculture for research, though Eagle Heights Woods was never farmed.
- **Wally Bauman Woods and Tent Colony Woods:** A relatively undisturbed woodland, this area also contained the Blackhawk Lodge and Tent Colony. The Tent Colony served as a summer residence for students and operated until 1962. Blackhawk Lodge was constructed by the Women's Athletic Association, and was available for recreational use by boaters, hikers, and winter sports enthusiasts.
- **Frautschi Point:** Originally known as "Second Point," this was the site of the Jackson Cottage—a name that doesn't do justice to the scale of the building and associated estate—and the Amelia Stevens House. The land was recently purchased by John and Jerry Frautschi, and given to the University in 1990 in honor of their father, Walter A. Frautschi. It includes the last remaining portion of the Lake Mendota shore that was not already protected as part of the Preserve.



Steel Ski Jump at Muir Knoll ca. 1940-50

CLP-A0108



University Bay Drive ca. 1895

CLP-A0208



Willow Creek Bridge ca. 1900-1910

CLP-A0179



Tent Colony ca. 1940-50

CLP-U0087



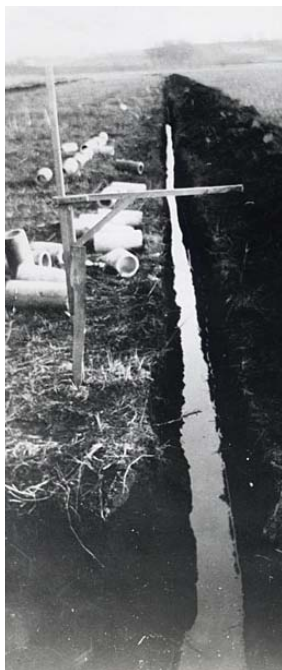
Amelia Steven's House ca. 1889

Photographer Unknown



Picnic Point Farmhouse ca. 1910-1920

CLP-U0027



*Drain Tile Installation at
Class of 1918 Marsh
CLP-U0059*



Picnic Point Farmstead

CLP-U0128



Field Preparation near Class of 1918 Marsh

CLP-U0175



*Eagle Heights Community Gardens from the Air
Photo courtesy of William Cronon*

- **Caretaker's Woods and the Base of Picnic Point:** This area of the Preserve was part of the Breese Stevens family property, which was sold to Edward Young in 1925. Young built many of the trails on Picnic Point as well as the stone wall at the entryway to this area.
- **Class of 1918 Marsh:** Originally a wetland, the marsh became part of UW-Madison's agricultural research enterprise. Tile drains were installed and the wetland was converted to farmland. The marsh draining project was initially quite successful. After many years, however, the drain tiles rose to the surface, making plowing difficult. The Class of 1918 donated money in the late 1960s to reflood the wetland, and the restored marsh was dedicated in 1972.

Community Gardens

The Eagle Heights Community Gardens were created east of the Eagle Heights Apartments in the early 1960s. They are among the oldest community gardens in the United States, and are remarkable for the diversity of horticultures practiced there. Gardeners from around the world, mainly residents of the Eagle Heights Apartments, rent plots and tend gardens, many using traditional methods brought from their countries of origin. The gardens of Eagle Heights Apartments and University Houses look like a patchwork quilt from above; at ground level, they symbolize the diverse ways human beings connect to and care for the earth.



Eagle Heights Community Gardens

Educational Resources and Uses

Interface with the UW-Madison Curriculum

There are many university programs that use the Preserve as an important part of their curricula, treating it as an extension of the classroom and research laboratory. Courses in many departments—Botany, Forestry, Geography, Landscape Architecture, Limnology, the Nelson Institute, Zoology, and others—use the Lakeshore Nature Preserve to study a wide variety of plant and animal communities. No natural area is closer to campus, or more fully integrated into the UW-Madison curriculum.

Biocore Prairie

As described on the Biocore website, “Students and staff from Biocore’s Evolution, Ecology, and Genetics courses are restoring an old field near Picnic Point to tall grass prairie and monitoring its progress. Each new class of students is learning ecological principles and methods by contributing to multi-year research projects at the Biocore site.” This prairie can serve as a model for other restorations in the Preserve, and the use of fire in its management can be extended to other Preserve ecosystems that will also benefit from controlled burns.

F.H. King Gardens

F.H. King Students of Sustainable Agriculture is a UW-Madison organization dedicated to promoting sustainable agriculture. It operates a garden plot

situated north and west of the Eagle Heights Community Gardens. The garden contains fruits, vegetables, flowers, rotation crops, a composting area, and a small meeting/gathering space.

CALS Plots

The College of Agricultural and Life Sciences (CALS) operates research plots in the field north of the Eagle Heights Community Gardens and the F.H. King Gardens.

Soil Pits

The soil pits, located in Bill’s Woods, are part of the Soils and Geography curricula. In particular, introductory physical geography lab courses use these areas to demonstrate various soil horizons and soil types as a supplement to classroom and laboratory activities.

Art and Anthropology Kilns

These kilns are located at the south end of the old orchard field. The art kilns are used by students and faculty to study traditional wood-fired methods of firing and glazing ceramics. The Anthropology department uses another kiln at this site to fire ceramics which are then buried in an adjacent soil pit for subsequent excavation and analysis.



Controlled Burn at Biocore Prairie within the Preserve
Photos courtesy of Glenda Denniston



Community Gardens (above) and Art Kiln (below)



Anthropology Work Site

Class of 1918 Marsh Studies

The Class of 1918 Marsh serves students and faculty in the Biocore, Landscape Architecture, and other departments as an example of a restored wetland. It is also an important birding area.

ROTC Training

Naval ROTC uses Picnic Point and its trail connections for training runs and navigation exercises. Army ROTC uses the Preserve for infrequent off-trail navigation exercises in the shrubby understory of Picnic Point Base and Frautschi Point. ROTC students also make significant contributions to restoration work in the Preserve as community service projects.

Muir Woods

Muir Woods has been used by students at Chadbourne Residential College to do environmental community service work with Madison area schoolchildren led by a Land Resources graduate student.



Wooden Overlook Structure at the Class of 1918 Marsh



*Facilitated Discussion Led by Faculty and Staff,
Class of 1918 Marsh
Photo courtesy of Ann Burgess*



*Students Performing Field
Work at Class of 1918 Marsh
Photo courtesy of Ann Burgess*

Indirect educational benefits

Finally, it is worth noting that many UW-Madison courses whose curricula may not seem to be directly related to the physical resources of the Preserve significantly benefit from its amenities. For instance, English 100 classes, Geography 120, sections of introductory courses in the Nelson Institute, and environmental history discussion sections of History/Geography/Environmental Studies 460 each year make use of the Preserve at one time or another.

Community Educational Outreach Opportunities

The Friends of the Lakeshore Nature Preserve organization sponsors many field trips and group activities, including:

- **Spring Ephemerals Walk:** Conducted when spring wildflowers are at their peak, this trip uses the Preserve trail system to visit concentrations of blooming flowers, and also introduces participants to various ecological restoration projects.
- **Bird Walks:** Birding opportunities abound throughout the Preserve. Guided trips by members of the Madison Audubon Society and the Friends of the Lakeshore Nature Preserve teach visitors how to identify songbirds while also learning the migratory patterns of bird species that frequent the Preserve.
- **Other Guided Walks:** The Friends of the Lakeshore Nature Preserve have also sponsored many other walking tours designed to introduce visitors to Native American burial mounds, geology, trees, butterflies, mammals, general ecology, and human history.



Spring Ephemeral Walk

Aesthetic Experience of the Preserve

Scenic views and view sheds are among the most precious and irreplaceable features that the Lakeshore Nature Preserve protects for the campus and the surrounding city. The historic development of Madison and the University of Wisconsin campus took advantage of the scenic opportunities of the isthmus between Lakes Mendota and Monona by situating the State Capitol and the main university buildings on two high hills connected by a corridor offering iconic views of the lakes. Among the most remarkable of these is from Observatory Hill, which looks north across the Lakeshore Nature Preserve toward one of the best-known views anywhere in the State of Wisconsin. Stretching more than four miles along the Lake Mendota shoreline, with a land area encompassing more one-third of the UW-Madison campus, the Lakeshore Nature Preserve is the most extensive protected green space in the downtown heart of Wisconsin's capital city. It makes a unique contribution to the distinctive beauty of city and campus alike.

Views abound throughout the Lakeshore Nature Preserve, though many have not been well managed or cared for in recent years. Some are still visible today, while others have become overgrown with invasive shrubs and will require restoration to be fully appreciated. The spine of Picnic Point, like other shoreline trail systems throughout the Preserve, potentially offers filtered views across Lake Mendota to University Bay, the UW-Madison campus, and the State Capitol. Thick understory vegetation, often composed of invasive shrubs, blocks many of the Preserve's most iconic views, most notably the view from the tip of Picnic Point back toward the Capitol and the Madison skyline. With careful vegetation management and selective removal of invasive plants, existing views can be maintained and former views that have disappeared behind invasive vegetation can be restored.

Views toward the Lakeshore Nature Preserve are just as important as views from the Preserve to the surrounding cityscape. These include the view from Memorial Union Terrace across the waters of Lake Mendota toward Picnic Point; the view to the north from interior spaces of the UW Hospital and Clinics toward the Class of 1918 Marsh and the hills of the Preserve; and the famed view, already noted, from the overlook on Observatory Hill toward Lake Mendota and Picnic Point. Furthermore, boaters in canoes, sailboats, powerboats, and other watercraft regularly visit this undeveloped shoreline to enjoy its natural beauty. These views toward the Preserve are just as important to protect and maintain as the stunning views of Madison that people visit the Preserve to experience.



Filtered Lakeshore View Achieved Through Selected Removal of Invasive Plant Species



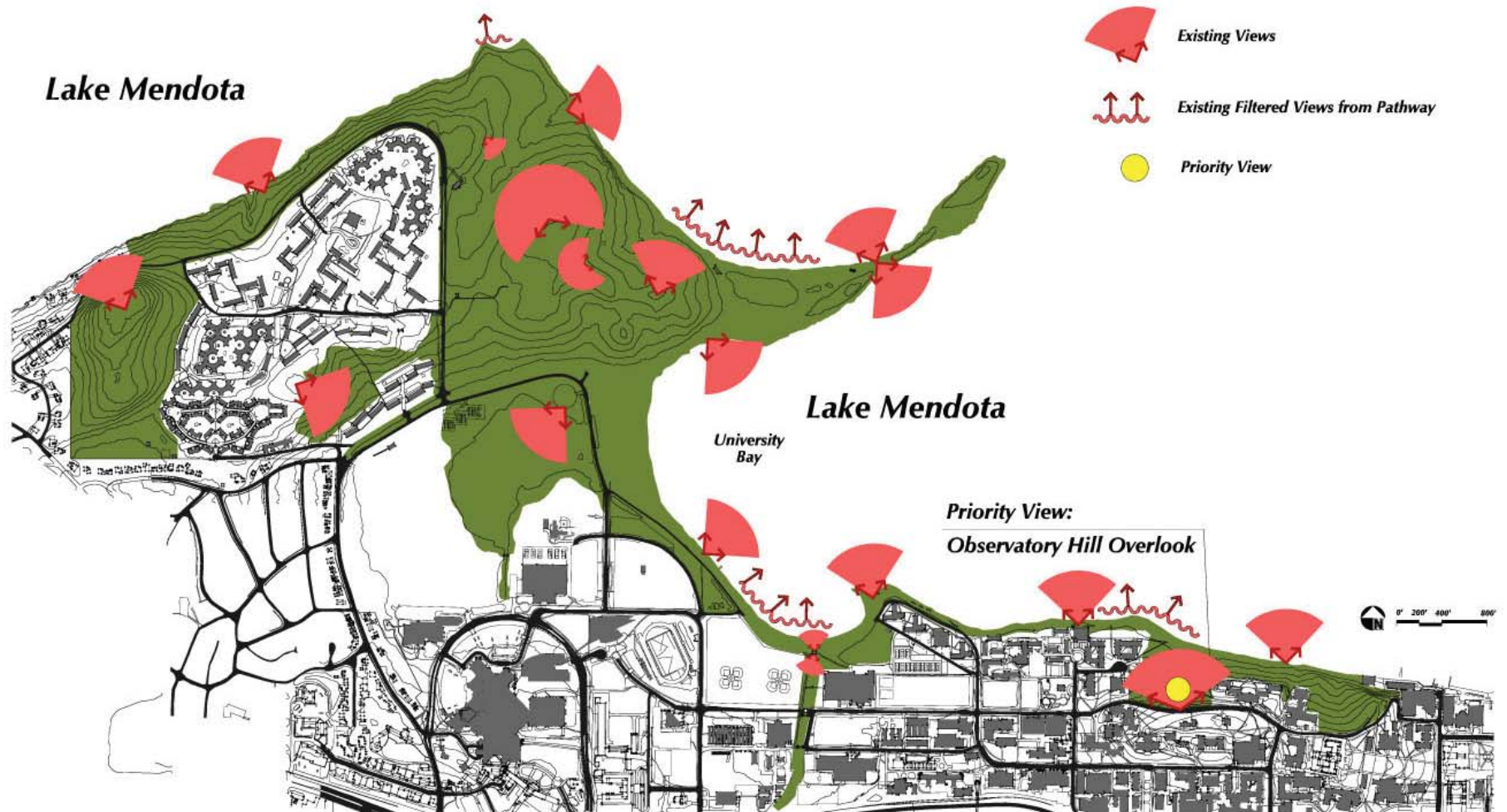
View to Picnic Point from Memorial Union Terrace ca. 1970

CLP-A0259



Current View to Memorial Union Terrace & Lake Mendota

Existing Views



Social Activities within the Preserve

Visitor Experiences

In addition to protecting some of the most cherished views of the university and Madison, the Preserve also protects a wide variety of human experiences with the natural world that would otherwise be much less accessible in a city like Madison. There are as many such experiences as there are individuals who come to the Preserve.

Visitor experiences range from early morning bird walks to plant-naming sessions to late-night stargazing. People come at all seasons of the year, seeking the leaf-filtered lake views of midsummer as well as the bare branches and cold light of winter, the exuberant wildflowers of early spring and the golden earth tones of fall. Undergraduates gather in large groups when their residence halls bring them to the tip of Picnic Point for bonfires and storytelling; families bring small children for weekend picnics; students and commuters walk and bike the Lakeshore Path to reach classes and jobs at the eastern end of campus and in downtown Madison. Students visit for coursework that ranges from ecological field studies to soil science excavations to archaeological investigations of ceramic weathering to athletic practices to ROTC training. Perhaps most importantly, people come in large social groups, and they also come all by themselves.

The design and management of the Preserve must respect all these kinds and scales of human experience, so that some visitors will be able to immerse themselves in nature and community with many dozens of companions, while others can come alone in search of solitude, with each type of visitor respecting the other.

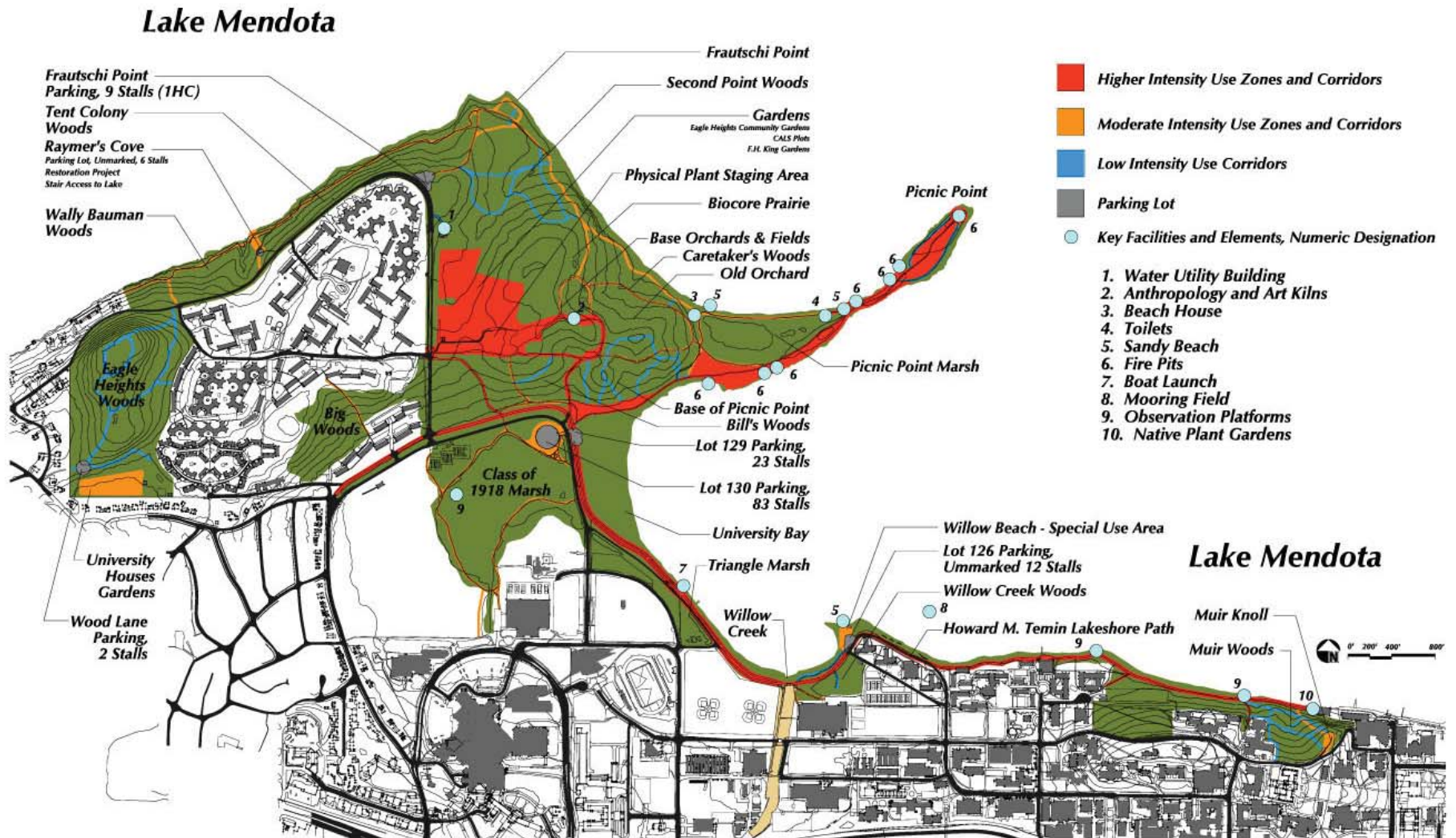
Existing Use and Circulation

In an effort to characterize the use and circulation within the Preserve, use zones and circulation systems were divided into three categories:

- **High Intensity:**
 - Eagle Heights Community Gardens
 - CALS Plots
 - F. H. King Gardens
 - Trail system and fire pits on the spine of Picnic Point
 - Class of 1918 Marsh trail
 - Howard Temin Lakeshore Path
 - Physical Plant Staging Area
- **Moderate Intensity:**
 - University Houses Gardens
 - Biocore Prairie
 - Muir Woods
 - Art and Anthropology Kilns
 - Main trails through Eagle Heights Woods
 - Main trail along Lake Mendota through Tent Colony Woods
 - Main trails through Second Point Woods and Caretaker's Woods along Lake Mendota
 - Frautschi Point
 - Trail adjacent to Picnic Point Marsh
- **Low Intensity:**
 - Secondary Paths in Eagle Heights Woods
 - Secondary Paths on Frautschi Point and in Second Point Woods
 - Secondary Paths at the Base of Picnic Point
 - Secondary Paths at Muir Woods

Key elements and features of these areas, such as site amenities, structures, and parking lots have been located and designated on the accompanying map.

Existing Use



Existing Trail System

The trail system of the Preserve has evolved over the past century and a half. Trails have been planned and added, some have been decommissioned, and still others have been created informally by users without an official planning effort by the university. Pathways range in composition from bare ground to bark mulch to limestone gravel to asphalt. Access roads are, in part, a product of the earlier farmstead history of the Preserve. While some routes are managed, others are not. This leads to a number of issues including:

- Degradation of pathways
- Lateral spreading of pathways
- Increased storm water runoff from compacted and impermeable trails
- Erosion
- Transport of invasive species
- Damage to vegetation and cultural resources

Trails are mainly limited to pedestrian footpaths. Exceptions that currently permit bicycling include the Howard Temin Lakeshore Path, Willow Drive, the bike trail to Eagle Heights Apartments, and the spine of Picnic Point. Off-road biking is not allowed anywhere in the Preserve because it exacerbates erosion, increases soil compaction, spreads invasives, and damages vegetation. Service vehicles occasionally use the asphalt and limestone paths for maintenance tasks. Emergency and service vehicle access is maintained to some areas of the Preserve, in particular at the Physical Plant Staging Area east of the Eagle Heights Community Garden.

Existing Facilities and Features

Entry Points/Gateways: Because the university has only recently recognized the Lakeshore Nature Preserve as an integral unit, the Preserve's entrances and gateways have never been given a unified design to help visi-

tors understand what and where the place is, and what special resources and qualities it protects. A key recommendation of this master plan is to apply to these gateways the careful design and implementation they deserve so as to give the Preserve as a whole the coherent identity it has never had.

Primary entry points include:

- Howard Temin Lakeshore Path by the Limnology Building
- Base of Picnic Point
- Class of 1918 Marsh (from parking lot)
- Frautschi Point

Secondary entry points include:

- Muir Knoll
- Willow Creek corridor
- Eagle Heights Community Gardens
- Raymer's Cove

Tertiary entry points include:

- Access from Wood Lane, Shorewood Hills
- Nielsen Tennis Stadium
- Observatory Hill
- Class of 1918 Marsh (from south)



Picnic Point Entry

Access to the Lakeshore Nature Preserve also occurs without a defined entry point in some areas. For example, along the Howard Temin Lakeshore Path near the Lakeshore Residence Halls, large open lawns abut the path, blurring the transition between the two and creating multiple informal entry points.

Few entry points to the Preserve are currently signed. At Picnic Point, Frautschi Point, and Raymer's Cove, parking lots signal major entrances to the Preserve, as do the stone walls at the base of Picnic Point and Frautschi Point. With proper signage, we can enhance all these gateways and create a well-ordered system of entrances to the Preserve.



Path of Leaf Compost and Compacted Soil



Asphalt Path on Picnic Point



Picnic Point Main Path



Raymer's Cove

Fire pits: There are seven fire pits on the spine and tip of Picnic Point which may be reserved for use. They serve as formal gathering spaces for groups both large and small. Surrounding vegetation often blocks views to the lake and people then make informal paths to the edge of the lake, adding to erosion problems. All of the existing fire pits are in significant need of maintenance and reconstruction.

Gathering Spaces: Very few large group gathering spaces exist in the Lakeshore Nature Preserve. Muir Knoll contains an open seating area that is in significant need of maintenance or reconstruction. Willow Beach offers an informal gathering space that has been little used in recent years. And although the tip of Picnic Point is frequently used for large group gatherings, it has never been properly designed to accommodate the volume of use it receives. Lack of appropriate spaces designed for large group gatherings has led to:

- Soil compaction
- Soil erosion
- Damage to vegetation
- Unauthorized informal trails

Benches and Overlooks: Scattered benches have been installed at various places in the Preserve. The greatest concentration is on Picnic Point, and there is a need for a small number of additional benches in the western portion of the Preserve to accommodate visitors for whom the distance between Eagle Heights Woods and Picnic Point is difficult to cover without rest stops.

Current benches are an inconsistent mixture of wood, aggregate, and concrete. Vandalism is an ongoing problem, suggesting the need to adopt appropriate designs for any new benches.

Few constructed overlooks exist in the Preserve, but there are opportunities to create additional overlooks and outlooks as views are opened up through vegetation management. For example, along the Howard Temin Lakeshore Path small wooden platforms and lakeside benches offer overlook opportunities, as do grassy clearings near Willow Creek Beach.

Picnic Point Beach House: Adjacent to Picnic Point marsh along the shoreline of Lake Mendota, the lannon-stone Beach House was constructed in 1968 but never used as such because of past concerns about the water quality of the beach. It stands as a historic remnant of a time when sailboats and beach parties more frequently drew crowds to the Picnic Point shoreline, but it has since fallen into disrepair and is now only used for storage. Although this plan does not make specific recommendations concerning the Beach House, a decision about its future needs to be made, and might appropriately be addressed once new storage has been created at the Physical Plant Staging Area.

Pit Toilets: Pit toilets are located at the Picnic Point beach where the peninsula narrows.



Pit Toilets



Fire Pit



Bench Overlook



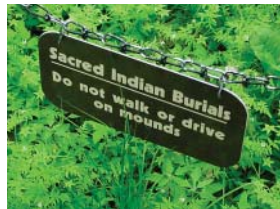
Bench Overlook



Picnic Point Beach House

Signage: Visitors need carefully designed signage to help them know when they are entering the Preserve, to help them navigate the trail system, and to help them better understand the natural and cultural resources that the Preserve protects. Too much signage, though, can detract from the natural beauty of the place, so a careful balance must be struck to make sure visitors have just the right amount of information to enhance their experience and understanding. The current signage of the Lakeshore Nature Preserve varies widely in type, material, and location. It has no consistent design vocabulary, and a key goal of this master plan is to offer recommendations for more cohesive signage.

Community Gardens – Eagle Heights and University Houses: Although some might question their presence within the boundaries of a nature preserve, in fact the Eagle Heights Community Gardens and University Houses Gardens represent one of the most important ways that human beings relate to the natural world: by tending the soil and growing food through careful stewardship to express community, cultural heritage, and ecological sustainability—values that echo throughout the Preserve, which is itself a kind of wild natural garden for the campus and the city of Madison. As noted earlier, Eagle Heights Community Gardens are among the oldest, largest, and most culturally diverse such gardens in the United States, bringing together people of all ages, nationalities, and backgrounds to share the gifts of family, community, and well-tended land while enjoying natural habitat, birds, soil, sun, water, and wind. Helping other non-gardening visitors understand the diversity of horticultural practices here, and appreciate the values and democratic practice of these community gardens, should be an important goal of the Lakeshore Nature Preserve.



Current Signage Examples



Gardening at Eagle Heights Community Gardens
Photo courtesy of William Cronon



Gardening at Eagle Heights Community Gardens
Photo courtesy of William Cronon

Special Uses within the Preserve

Physical Plant Staging Functions

The University of Wisconsin-Madison Facilities Planning and Management department uses part of the Preserve as a staging area for campus building and landscape maintenance. Designated the “Physical Plant Staging Area,” it is sited southwest of the Picnic Point Base Orchard and Fields, and adjacent to the Eagle Heights Community Gardens and Art/Anthropology Kilns. This master plan recommends that this facility be bermed and upgraded with water infiltration technology and native plantings to minimize its ecological impacts on other areas of the Preserve. Covered storage can be added at the same time, to be shared by Physical Plant, Biocore Prairie, and the community gardens.

Access to Lake Mendota for Fishing

Open Water Shoreline Fishing: Raymer's Cove has historically been an area where shoreline anglers congregate. Access to the water's edge down steep slopes has encouraged erosion, which is exacerbated both by upland drainage and by frequent human use. Recently, a DNR water-quality improvement grant enabled Preserve managers to address serious erosion problems in this area. A wooden staircase has been built to facilitate access to the lakeshore; the parking lot has been redesigned with a smaller number of better marked stalls; and native plant communities were restored in the area adjacent to the parking lot. Further bank protection will protect fragile soils. Users of the Preserve are already seeing the physical results of this project through enhanced access and views. The project can serve as a model for high-traffic areas where shoreline access is impeded by steep, erosion-prone slopes.

Ice Fishing: In the winter, people seeking to fish and place fishing huts on frozen Lake Mendota do so in three areas of the Preserve: Raymer's Cove, Frautschi Point at the fireplace, and through the University Bay Marsh and the boat launch pier. Ice fishing access needs to be managed so as to minimize deleterious impacts from erosion and damage to vegetation.



Physical Plant Staging Area



Wooden Staircase at Raymer's Cove



*Fishing along the Preserve Shoreline
Photo courtesy of Glenda Denniston*

Access to Lake Mendota for Boating

Mooring Fields & Canoe Posts: Mooring fields owned and operated by the Wisconsin Union are popular boat storage facilities in University Bay. There are 65 individual mooring buoys available for rent, and the waiting list for access to these indicates high demand. The buoys line the shore of Lake Mendota and are designated by area:

- Area One - Off of the Memorial Union Terrace (43 mooring buoys)
- Area Two - To East of Willow Beach (16 mooring buoys)
- Area Three - (proposed but never created)
- Area Four - Near Willow Creek outfall (6 mooring buoys)

The Wisconsin Union also rents small boat hitching posts, which are physically placed on the shoreline along University Bay. There are 32 of these posts strung out along the shoreline; unlike the moorings, they can be rented without university or Wisconsin Union affiliation. Planned elimination of the posts and consolidation of storage into racks at Willow Beach and the boat launch area will reduce shading damage and erosion along this fragile shoreline; eliminate shoreline clutter; and open unobstructed views along University Bay. There are seven posts (all to the east of Willow Beach) used exclusively by the people in Area #2 to reach their moored boats. There are an additional four (on the point just to the west of Willow Beach) which are used by a combination of Area #2 and Area #4 boaters, along with several non-mooring people.

Boat Launch and Pier: One designated boat ramp exists in the Preserve on University Bay near Marsh Lane. This concrete structure, located near Parking Lot 60, permits watercraft to be lowered from trailers into Lake Mendota. The boat ramp poses no serious threats to views, user access, or bank stability, and serves many stakeholders. This master plan does not propose to alter its present location, but redesign of transport routes and parking facilities in the west campus area may eventually require a small amount of additional parking for users of the ramp.



Mooring Field



Mooring Posts



Boats at Willow Beach



Regulatory Signage at the Boat Launch



Boat Launch in the Preserve

THE MASTER PLAN

Overview

Input from participants in this planning process has begun a conversation that has enhanced each recommendation in the master plan that follows. This will continue as the Preserve evolves. Throughout this master plan, we assume that all recommendations will be implemented through a process of adaptive management. Our emphasis in this document is on general principles and broad conceptual recommendations. When these recommendations are implemented, we expect that additional site analysis, community input, and operational design will likely follow before action is taken on the ground. Furthermore, we expect that master plan implementation and management will be iterative, evolving as new information becomes available about ecosystem dynamics, physical processes, and visitor activities in the Preserve. Any specific implementation should include plans for monitoring the effects of that change, so that subsequent modifications can be made as needed to achieve the larger goals of the Lakeshore Nature Preserve.

Fundamental Issues

Human Activities and Conservation within the Preserve

As stated in the mission statement of the Lakeshore Nature Preserve, the Preserve shelters biologically significant plant and animal communities for teaching, research, outreach, and environmentally sensitive use; safeguards beloved cultural landscapes; and protects important human experiences of the natural world. Inappropriate activities within the Preserve have the potential to compromise the integrity of these biotic and cultural resources. Preserving these resources for the use and enjoyment of present and future generations is the chief goal of this master plan.

Human activities within the Preserve foster a sense of connectedness to the land, a greater understanding of its natural systems, and an enhanced appreciation of its importance for the university and surrounding community. Protecting the Preserve from future development is an ongoing struggle that will require proactive involvement from all who love and understand its inherent beauty and value. Heightening public awareness of the Preserve, and encouraging people to visit and use it regularly, is essential to building the constituency of those who will support and defend it in the future.

The Lakeshore Nature Preserve Committee is charged with monitoring the impacts of human activities on the overall health of the Preserve, while simultaneously encouraging and enhancing the positive, sustainable experiences of the many users who enjoy, learn from, appreciate, and cherish this special place.

The Preserve as an Integral Part of Campus

The 2005 Campus Master Plan Update for the first time explicitly treats the Preserve as an integral part of the larger campus. It seeks to integrate sections of the Preserve, particularly the Howard Temin Lakeshore Path, to corridors of open space that extend outward from the Preserve into the fabric of the urban campus. The Campus Master Plan also supports enhanced views and view shed management strategies that are consistent with the recommendations of this Preserve master plan.

The two parallel master planning processes have created a dialogue between campus planners and users that is unique in the history of this campus. The Preserve Committee is charged with continuing this open dialogue to advocate for the Preserve as an integral part of campus-wide planning.

Managing Competing Uses of the Preserve

The Preserve has long been a favorite destination for members of the university and greater Madison communities. The Preserve is regularly used for running, biking, exercising, picnicking, fishing, birding, walking, gardening, restoring habitats, and seeking quiet retreat. Managing Preserve lands to accommodate these many educational, recreational, and conservation activities requires thoughtful caretaking at an increasingly fine-grained scale to avoid conflicts among different uses while minimizing damage to the underlying biophysical systems and processes of the Preserve.

For example, the Lakeshore Nature Preserve Committee affirmed in the spring of 2005 a bicycle policy that limits bicyclists to the Lakeshore Path, the main trail on Picnic Point, and the bike path to Eagle Heights Apartments. (Bicycles have been prohibited from all other parts of the Preserve for many years.) Public input regarding bicycle access to the main trail on Picnic Point revealed how intensely people feel about whether bicycles should or should not be permitted on Picnic Point. Some Preserve users feel quite passionately that bicycles should be forbidden from riding on Picnic Point; others feel just as passionately that bikers should be as welcome as walkers on the main trail as long as they travel at safe speeds and respect pedestrians as they do so.

This disagreement seems unlikely to disappear anytime soon. Management policies under such circumstances can hardly help but be challenging, but it is well worth remembering that even intensely felt differences of opinion are evidence of how much the public cares about the Preserve and its protection. Building and nurturing public engagement with the Preserve to minimize conflicts among different uses and users—through regular public input, responsible use, mutual respect, and good governance—is as important as managing invasive species, controlling erosion, and practicing ecological restoration.

Off-site Impacts on the Preserve

The Preserve does not exist in isolation from the surrounding city. Growth of the University of Wisconsin campus, particularly West Campus, as well as the City of Madison, have had far-reaching impacts on Preserve lands.

Storm water runoff from impermeable developed adjacent land creates adverse impacts in many parts of the Preserve. The greatest of these impacts occurs at Willow Creek, which carries runoff from a large and highly developed urban watershed on the west side of Madison. Willow Creek exhibits extreme peaks in flow from storm events and spring floods, contributing to the growing sediment plume that is rapidly filling the western portion of University Bay. Other areas suffer from storm water runoff that is concentrated and conveyed from beyond the edges of the Preserve. For instance, a newly installed outfall structure at Raymer's Cove is already being undercut and washed out by the excessive volume and velocity of storm water arriving from Eagle Heights and Shorewood Hills. Storm sewers along the Howard Temin Lakeshore Path continue to be upgraded, temporarily affecting the aesthetic experience of the path, in an effort to manage the high volumes of runoff from the developed campus to Lake Mendota.

Visual clutter and excessive noise from beyond the margins of the Preserve negatively intrudes on the solitude that so many visitors seek from the Preserve. Views across Lake Mendota to the built environment of Madison and the University of Wisconsin campus are generally seen positively. Some of the newer architecture at the west end of campus, however, is less attractive and could be mitigated with vegetative buffers. As canopy trees mature at the south edge of the west campus, visual clutter should be lessened. Some areas of Eagle Heights also affect the visual quality of the Preserve. Parking lots adjacent to Lake Mendota Drive lack adequate screening, resulting in naked views of cars and the buildings beyond. An example of this phenomenon occurs across Lake Mendota Drive from the entrance to Frautschi Point, where one confronts a jarring view of parking and massed buildings upon exiting the Preserve. A naturalistic vegetative screen should be developed here, with the additional advantage of enhancing the Lake Mendota Drive corridor.

Noise pollution is generated by several sources that affect the Preserve. The most prominent comes from traffic on adjacent roadways, work activities within the Physical Plant Staging Area, and stand-alone HVAC units on buildings near Preserve borders. The 2005 Comprehensive Campus Master Plan modifies the area around the current Friedrich Center, potentially eliminating the large (and noisy) condenser units associated with that complex. This master plan seeks some reduction of vehicular traffic within the Preserve, but

car and bus traffic on adjacent roadways will continue to generate noise. The Physical Plant Staging Area will be reconfigured, though sporadic noise from operations there cannot be eliminated altogether. (Indeed, one reason this facility cannot easily be moved elsewhere on campus is the noise it would bring to labs, offices, and classrooms where it would be even more disruptive.)

In-depth examination of these issues could not be accomplished with the limited resources available to this master plan process. Problems created by off-site sources of storm water runoff and pollution are complex, with many causes, and their solution will require the participation of many partners and stakeholders, including the Village of Shorewood Hills, the City of Madison, and the State Department of Natural Resources. The same is true for noise, visual clutter, and air pollution. The Preserve Committee is charged with continuing the dialogue with adjacent communities and institutional partners to minimize the impacts of surrounding areas on the Preserve.

Sustainable Management Guidelines

The following Guidelines for Sustainable Management propose general principles for implementing the specific recommendations of this master plan, and apply no less forcefully to Preserve management practices from day to day. Many of them apply to management practices in parts of the campus beyond the boundaries of the Lakeshore Nature Preserve, so their implementation will require broad cooperation with the rest of campus.

Use natural processes to restore and manage Preserve systems wherever possible

- Rehabilitate degraded natural areas with appropriate native plants and management techniques to encourage gradual establishment of desired biological communities. Restore and enhance areas designated for heavier use or as working landscape with naturalistic vegetation capable of withstanding the impacts of anticipated uses.
 - Where physically possible and appropriate for the intended use, restore and stabilize failing and eroding slopes, lakeshores, and stream banks using environmentally sensitive techniques such as naturalistic vegetation plantings and other bioengineering techniques rather than with hard-edged structures such as retaining walls, concrete, or dumped rip-rap armoring.
- Where possible, seek to emulate natural processes in managing Preserve lands and ecosystems. For example, careful reintroduction of fire should be attempted not just in restored prairies and wetlands but also in savannas and dry woodlands where the latter can sustain fire without excessive risk to the mature trees or to nearby human structures.

Encourage green planning and policy

- Prioritize green infrastructure as a primary investment and incorporate green infrastructure into campus plans and policies.
- Encourage sustainable site design, protection of native vegetation, and natural landscaping where appropriate.
- Encourage site managers and maintenance departments to use sustainable natural landscaping and landscape management techniques that minimize the need for irrigation water, chemical fertilizers, pesticides, herbicides, and vehicular traffic.
- Minimize clearing, grading, and other site disturbances, especially in or near environmentally sensitive areas, and control erosion and sedimentation during site preparation and construction using techniques such as temporary and permanent seeding, mulching, earth dikes, stone filters, stone tracking pads, silt fencing, sediment traps, and sediment basins.
- Work to eliminate point source pollution into Lake Mendota and Class of 1918 Marsh.

Manage rain water as a resource

- Work with appropriate campus partners to reduce the discharge of storm water into streams, lakes, and wetlands by retaining as much storm water as possible on campus and within the absorption capacity of the natural landscape.
- Minimize impervious surfaces and storm water runoff by encouraging permeable paving techniques (pavers, permeable asphalt) for low traffic areas and parking lots, and green roof systems for buildings. Require/allow parking lots to incorporate natural landscaping (planting strips between parking bays and around the perimeter of the parking lot usable for bioretention) and the following storm water treatment practices: infiltration bio-swales, vegetated swales, vegetated filter strips, infiltration basins/trenches, sand filters, and similar measures designed to filter, retain, and infiltrate runoff.
- Establish design standards for and install natural drainage and storm water treatment features (constructed wetlands, rain gardens, retention areas, dry wells, green roofs, and naturally vegetated filter strips and drainage swales) and/or use existing natural features and hydrology of the landscape (drainage swales and areas of deep-rooted native vegetation) to filter and absorb storm water into the ground.
- If all rain water cannot be absorbed by the built landscape, detain storm water with naturalized wet or dry detention basin designs, which replicate a natural wetland or pond system and thereby cleanse runoff and provide natural habitat.
- Harvest rain water in rain barrels and cisterns for potential landscape irrigation and/or other uses.

Prevent damage to land, water and cultural resources

- Create setbacks adjacent to the Preserve that protect natural areas and cultural features. Exercise great care in making site modifications within 100 feet or more of water resources (i.e., Class of 1918 Marsh) to prevent non-point source runoff from lawns or other partially impervious surfaces. Maintain appropriate setbacks from the perimeter of effigy mounds to reduce impacts.
- Utilize vegetated buffers and transitional edge plantings to protect the integrity of restored natural areas. Create natural buffer zones and restore native vegetation along the margins of water resources.

Mandate sustainable design principles in planning and constructing amenities

- Incorporate found materials within the Preserve (timber, discarded building materials, paving stones, etc.) in the design and construction of amenities. Develop a palette of sturdy, low-maintenance materials and elements that reflects appropriate design for this region of Wisconsin.
- Locate amenities to minimize impacts on land and water resources within the Preserve while optimizing the enjoyment of scenic views and access to natural and cultural features.

Encourage visitors to enjoy and learn from the Preserve while protecting its environmental and cultural resources

- Promote an ethic of stewardship on all informational signage at Preserve entrances. Encourage Preserve stewardship as part of the orientation program for all incoming students, faculty, and staff.
- Provide a rational and clearly marked circulation system throughout the Preserve. Provide sensitively designed site elements (benches, overlook structures, etc.) to allow access to desired views and features within the Preserve.

Land Use and Circulation Guidelines

Circulation

This master plan offers conceptual recommendations for trail alignments, removals, and classifications. These should be understood as general guidelines depicting a logical framework for circulation throughout the Preserve. The recommended layouts and design guidelines are flexible, since resource protection goals, safety considerations, and fine-grained topographical variations are difficult to anticipate at the scale of a master plan. As with all recommendations in this plan, adaptive, iterative implementation and management should be understood as the best way forward.

The circulation plan utilizes the existing trail system wherever possible, though we also propose modification and removal of existing trails. Proposed modifications include realignments to improve accessibility, or to reduce impacts on natural or cultural resources. Other modifications include narrowing the widths of trails and changing surface materials, particularly where existing asphalt drives are redeveloped as pedestrian walkways. Trails have been proposed for removal where severe erosion issues are occurring, or where a current route infringes on sensitive biotic or cultural resources. Redundant trails have also been recommended for removal to minimize fragmentation of natural areas. The plan recommends additional trails to augment existing circulation patterns and to provide access to future vegetation communities.

Recommendations:

- Provide routes that offer diverse educational, recreational, and aesthetic experiences throughout the major areas of the Preserve
- Develop a consistently signed trail system from Muir Knoll and the Lakeshore Path to Eagle Heights Woods to help visitors experience the Preserve as an integral whole
- Minimize fragmentation of habitats
- Develop clear entry points
- Minimize service vehicle traffic
- Eliminate redundant paths
- Eliminate or modify paths in erosion-prone areas
- Avoid negative impacts on sensitive cultural and ecological resources
- Provide barrier-free access where this can be accomplished without undermining other goals of the Preserve

Trail Development Guidelines: This master plan recognizes four classes of circulation routes within the Preserve. Not all existing paths, trails and drives necessarily meet the standards of the proposed classifications. As opportunities arise to implement the recommended improvements to the circulation plan, specific routes will be defined on site. New trails and redevelopment of existing trails should employ the following standards:

- *Pedestrian Trail:* This is the most common trail type. These are interconnected routes to provide access to important destinations throughout the Preserve such as natural, cultural, historic, or scenic resources. These trails are two to five feet in width, and can be soft-surfaced or hard-surfaced depending on intensity of use. Soft-surfaced trails can be either mown turf paths; wood-chip or shredded hardwood material; crushed limestone screenings over a prepared base; or earth and leaf litter if these can sustain the level of use they receive. Hard-surfaced trails can be either permeable asphalt pavement or permeable modular paver systems. Boardwalks can also serve as primary pedestrian trails in wet areas. It is very important that trails be no wider than their level of use requires; and visitors should not ordinarily expect to walk two abreast on most trails in the Preserve. Many of these trails comprise long term passage ways through the Preserve and are maintained to sustain access to experiences that are familiar to generations of visitors.
- *Multi-use Trail – No Bicycles Allowed:* This classification covers multi-use routes which are intended to carry service vehicles as well as pedestrians in the Preserve. These routes do not accommodate bicycles. Paved surfacing is recommended only for the service route giving access to the Physical Plant Staging Area site. When there is an opportunity to resurface this paved route, permeable options of paving (mown turf, limestone and shredded hardwood) will be evaluated according to the soil conditions, maintenance cost and ability to support use.
- *Multi-use Trail – Bicycles Allowed:* These routes are major pedestrian and bicycle routes that are separated from regular vehicular traffic. Authorized service and emergency protection vehicles travel these routes to serve the people and land care needs of the Preserve. This classification encompasses the Howard M. Temin Lakeshore Path and the main trail to the end of Picnic Point. Paved portions of the Lakeshore Path provide further separation of pedestrians and bicyclists. Trails in this category can be surfaced with limestone screenings over a prepared base or can be hardened surfaces, occasionally with soft-surfaced pedestrian shoulders. The multi-use route to the end of Picnic Point should be surfaced with crushed limestone screenings on a prepared aggregate base. Because the main trail on Picnic Point is re-graded with some frequency, any future rerouting and surfacing of this trail must be designed with re-grading in mind; a special challenge is preventing re-grading from gradually expanding the width of the trail. The paved surface of this route should not exceed ten feet in width.
- *Bike Lane:* This classification refers to striped bike lanes along the right side of paved roadways. These lanes are typically five feet in width, particularly when headed uphill, though they can also be a minimum of three feet in width in flatter stretches or on downhill slopes. This type of bikeway occurs within the Preserve on Lake Mendota Drive, beginning at the entrance to Frautschi Point and continuing west to the boundary of Shorewood Hills.

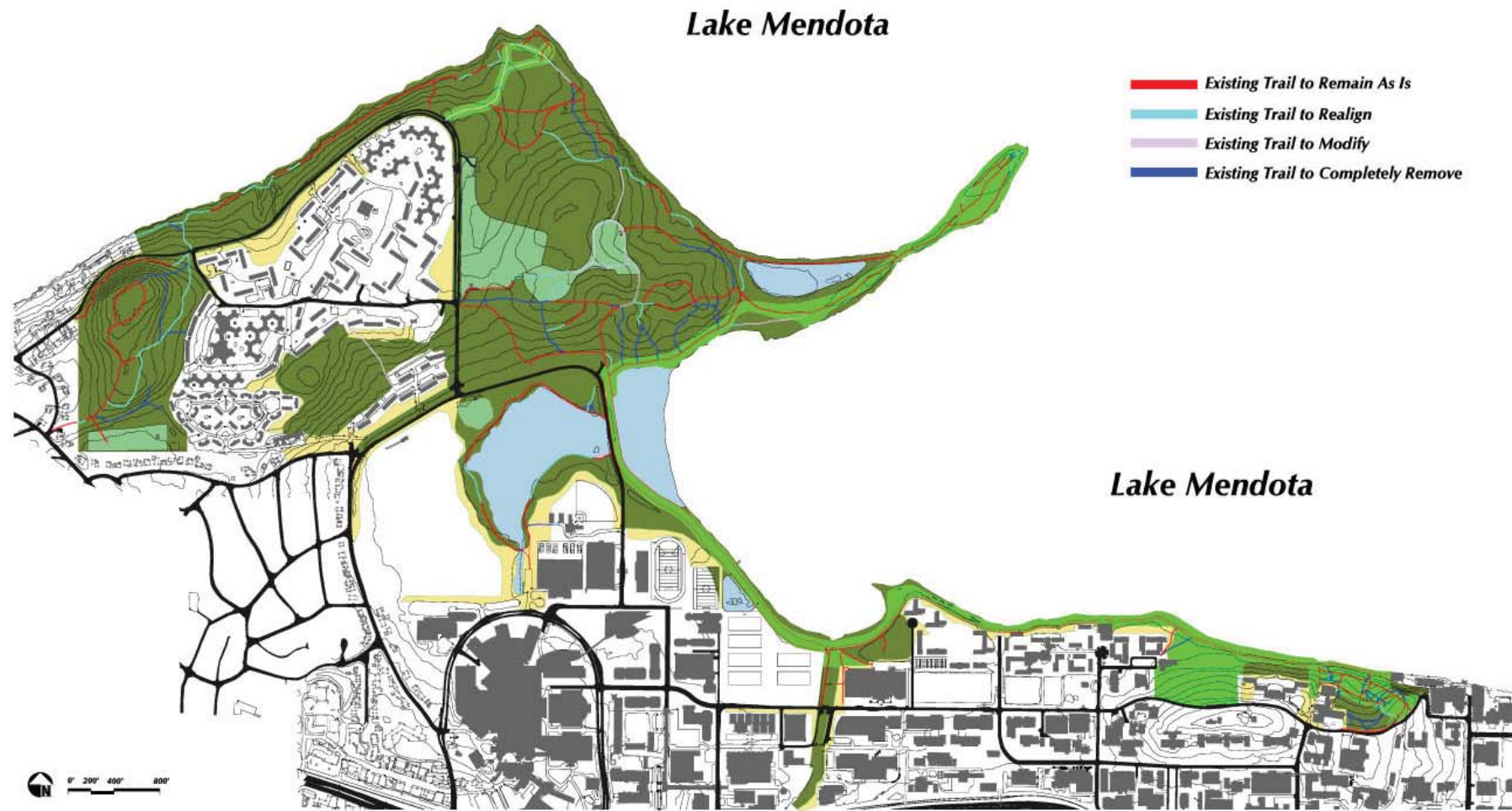
Accessibility within the Preserve: The proposed circulation system includes trails that are accessible to people with disabilities. Recommendations do not propose the creation of new or modification of existing trails for such accessibility, but rather identify existing and proposed trails that are accessible. These trails are typically five to six feet wide and are surfaced with firm, stable and slip-resistant materials. Surfacing is typically crushed limestone screenings on a prepared base or, much more rarely, permeable asphalt. Boardwalks can also serve as accessible trails in wet areas. Accessible pathways within the Preserve include:

- Howard M. Temin Lakeshore Path
- Picnic Point Path
- Frautschi Point Loop Path
- Multi-use Trail parallel to Lake Mendota Drive
- Sidewalk from Observatory Drive to Muir Knoll Gathering Area
- Sidewalks along Willow Creek between Observatory Drive and Lakeshore Path
- Selected trails of the Class of 1918 Marsh

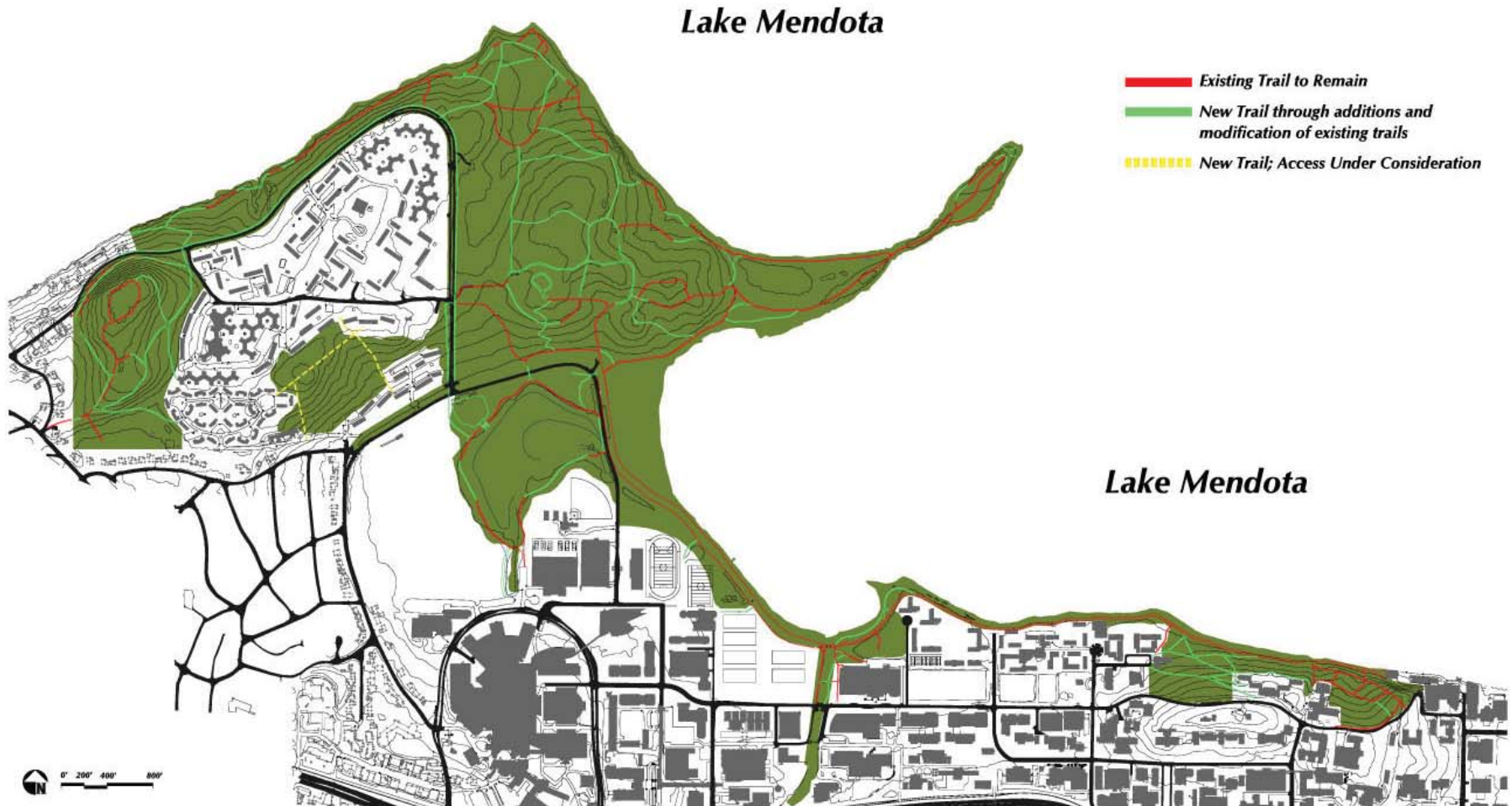
Trail Head Development Guidelines This master plan classifies three levels of visitor entrances for the Preserve; primary gateways, and secondary and tertiary entries:

- *Primary Gateway:* These entry points accommodate higher numbers of visitors and users of the Preserve. Orientation to the Preserve is provided through information kiosks. Bicycle parking is provided, as well as trash and recycling receptacles. These gateways could include appropriately designed hard-surface areas to convey a sense of arrival to a special place. Benches should be included to provide opportunities for informal gatherings or meetings.
- *Secondary Entry:* These entries differ from the Primary Gateways by accommodating smaller numbers of users and functioning primarily as entry points, not gathering spaces. Orientation to the Preserve through sign kiosks should still be provided, but to a lesser degree than at Primary Gateways. Bicycle racks, trash and recycling receptacles, and possibly benches may be appropriate at certain entries.
- *Tertiary Entry:* These entries accommodate relatively low numbers of users. Orientation to the Preserve is necessary—visitors should always be aware when they are entering the Preserve at a formal entry—but signage should be significantly less prominent than at primary and secondary entries. Bicycle racks may be provided if necessary, but many of these entry points mainly accommodate pedestrians.

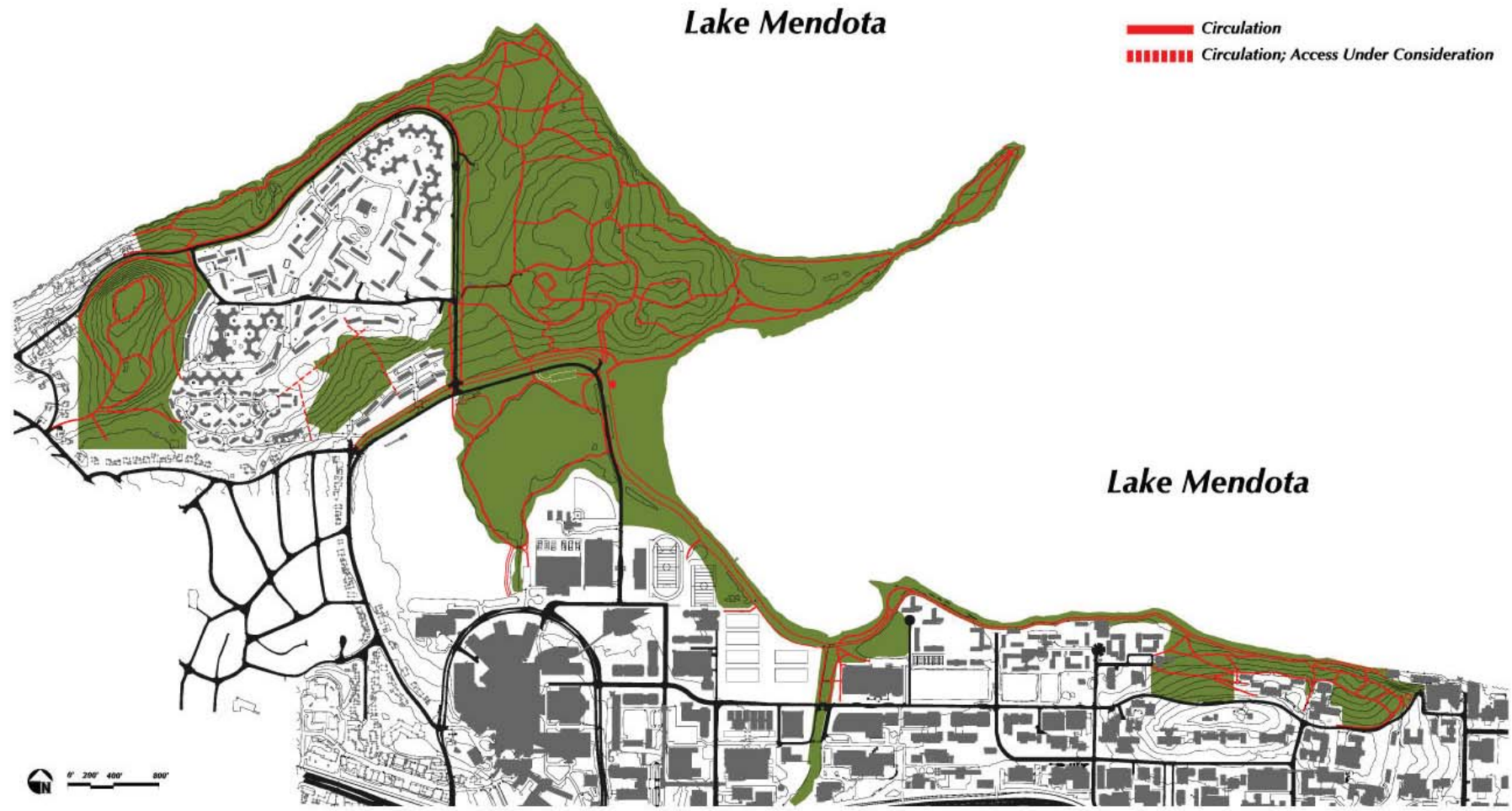
Trail Modification Plan



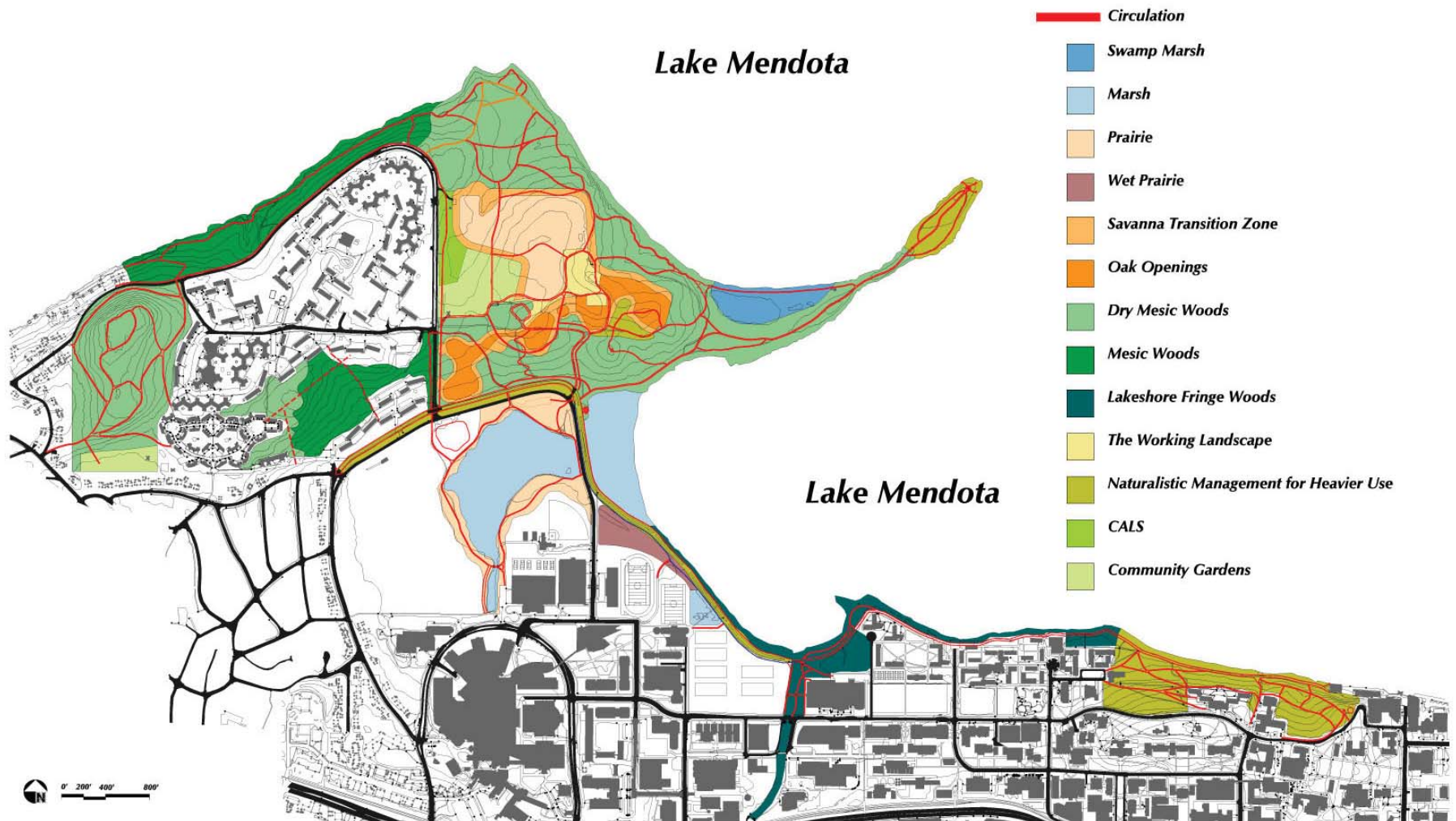
Proposed and Existing Trails



Proposed Circulation



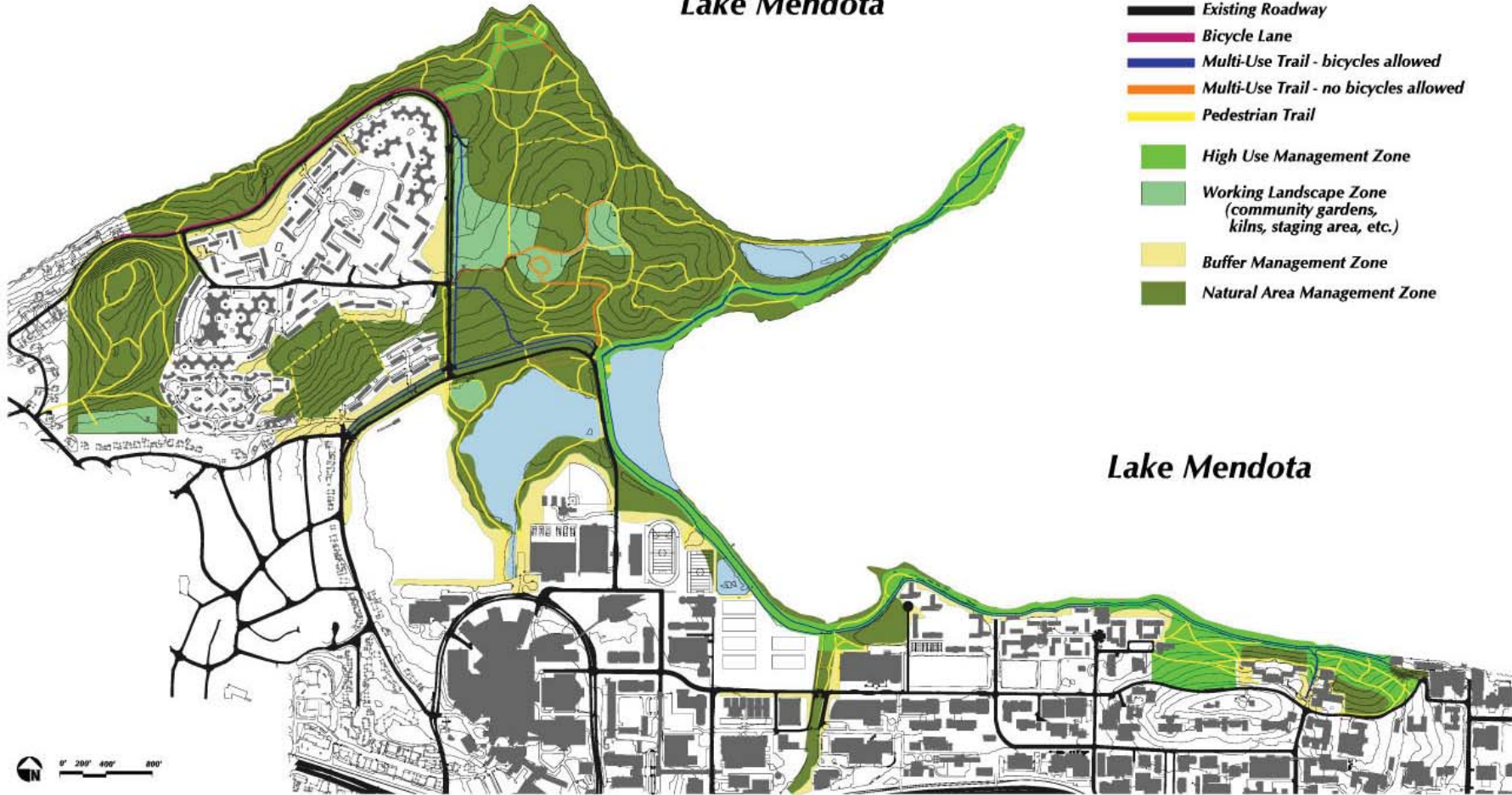
Proposed Circulation and Future Vegetation



Proposed Trail Use

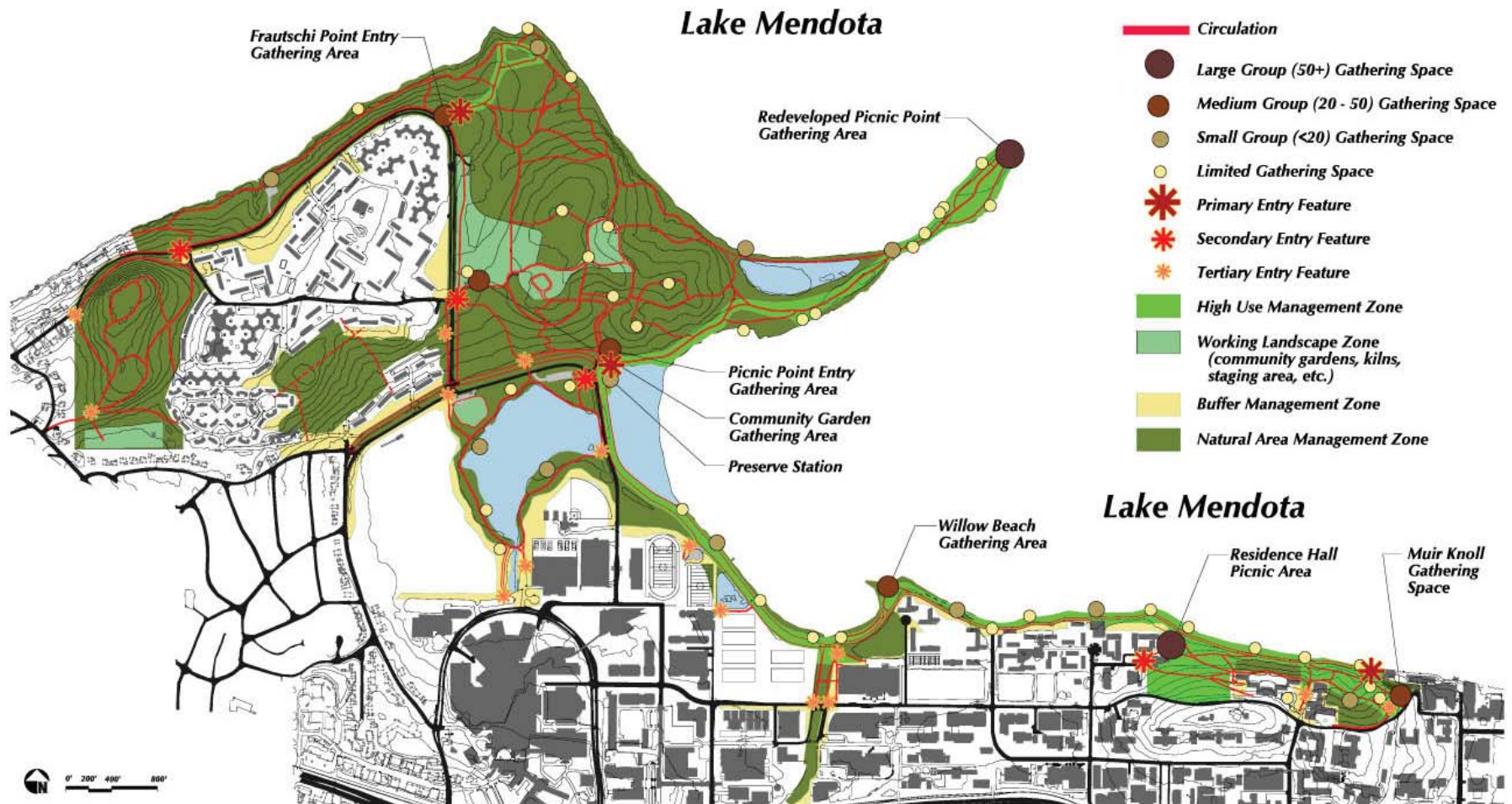
Lake Mendota

-  Existing Roadway
-  Bicycle Lane
-  Multi-Use Trail - bicycles allowed
-  Multi-Use Trail - no bicycles allowed
-  Pedestrian Trail
-  High Use Management Zone
-  Working Landscape Zone
(community gardens,
kilns, staging area, etc.)
-  Buffer Management Zone
-  Natural Area Management Zone



Lake Mendota

Proposed Circulation and Features



Land Use:

This master plan recommends the following classifications for lands in the Lakeshore Nature Preserve.

Natural Area Management Zone: This is the predominant classification throughout the Preserve, focusing management activities on restoration and rehabilitation of naturalized landscapes. Long-term management activities should work toward establishing the desired biological communities identified in the Future Vegetation Plan.

High Use Management Zone: These areas receive greater impact from high-intensity or frequent use. While management activities should utilize naturalistic processes and materials where feasible, more aggressive management techniques may be required to accommodate and mitigate the impacts of intensive use.

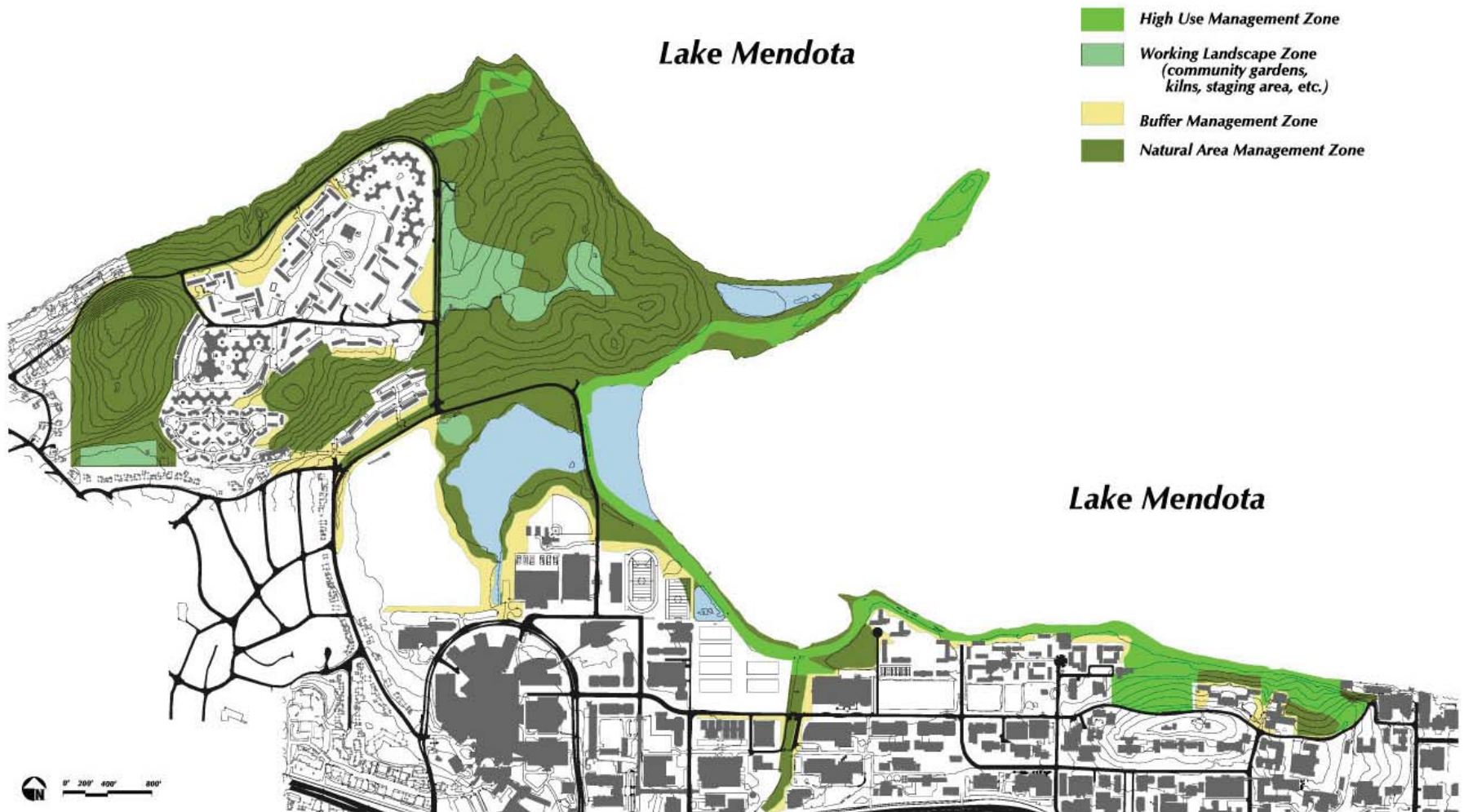
Working Landscape Zone: This zone consists of working garden and agricultural research areas; the Physical Plant Staging Area; the kilns; and the culturally significant orchard field remnant. Service vehicle access occurs most frequently in this zone. Lands within this zone should be managed to mitigate impacts on the surrounding naturalized landscape. The orchard remnant should be managed as a vestige of historic land use, retaining a meadow-like character for at least the life of the remaining orchard trees.

This master plan also recognizes the importance of collaborative management of adjacent areas that significantly affect the Preserve.

Buffer Management Zone: The areas within this zone include those lands immediately adjacent to the Preserve that have the greatest potential for negative impacts. These areas are predominantly managed lawns that convey storm water runoff and deleterious materials used in managing turf grass. Vegetative buffers and infiltration basins should be created in these areas to mitigate impacts on the naturalized landscape of the Preserve.

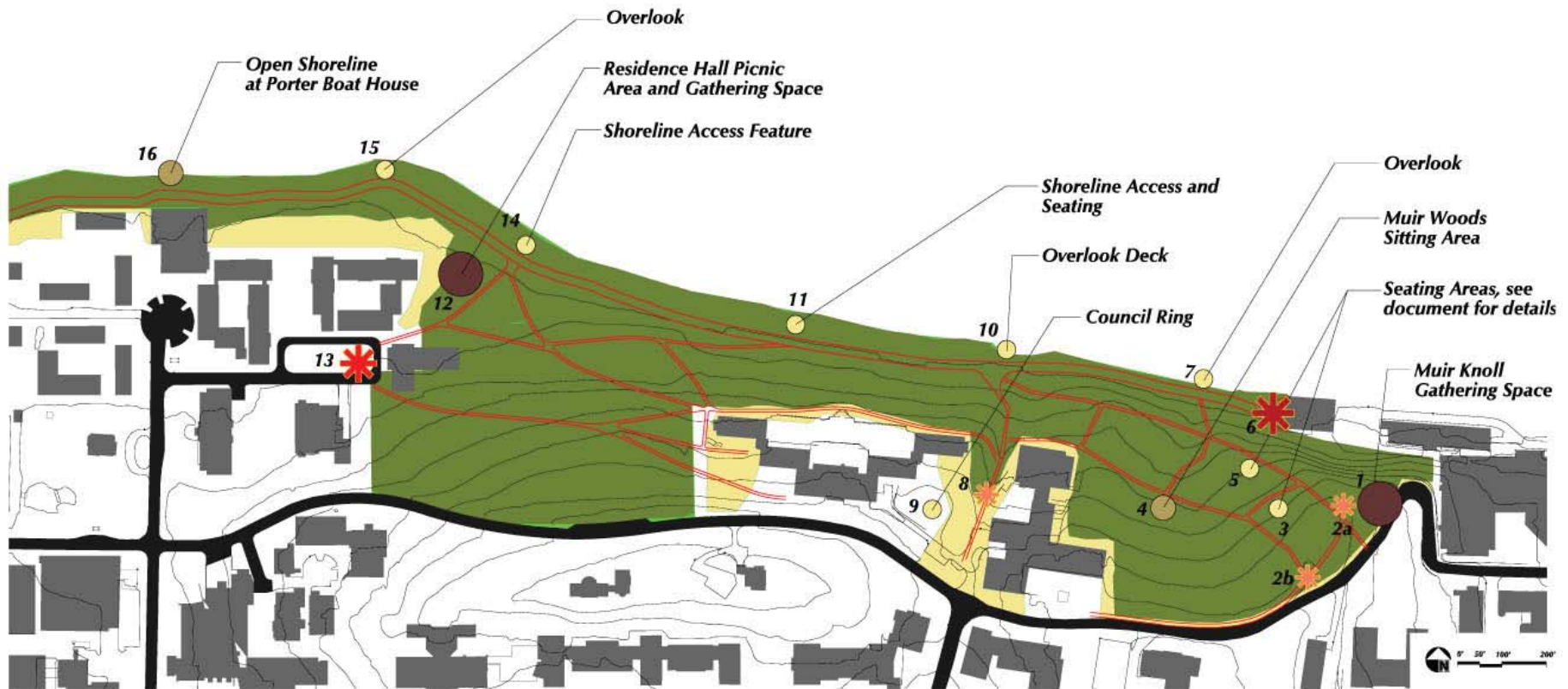
The following diagrams indicate the land-use recommendations, circulation patterns, and siting of features in greater detail. Each of these detail plans is accompanied by a written description of designated features, coded to the plans by number.

Proposed Land Use



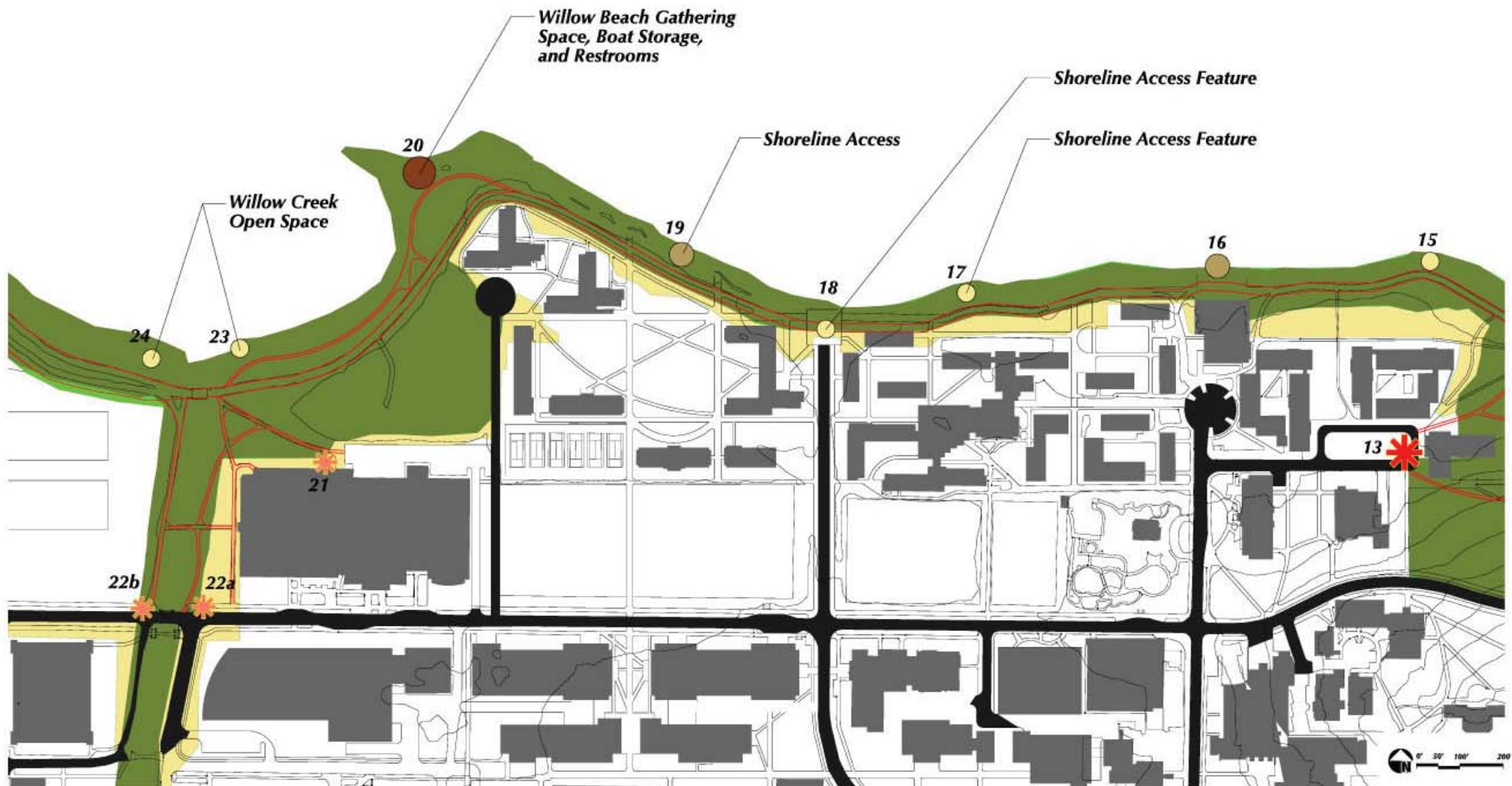
Proposed Circulation, Enlargement One:

1. Muir Knoll Gathering Space
- 2a. Tertiary Entry Point at Muir Knoll Gathering Space
- 2b. Tertiary Entry Point – Trail head
3. Seating Area within Muir Woods
4. Small Group Gathering and Seating Area within Muir Woods
5. Seating Area within Muir Woods
6. Primary Gateway at Limnology – Native Gardens
7. Overlook – bench (extant)
8. Tertiary Entry Point at Social Science/Elizabeth Waters Hall
9. Council Ring (extant)
10. Overlook Deck (extant)
11. Shoreline Access Feature – stone slab steps to lakeshore seating
12. Group Gathering Space and picnic area – following Lot 34 removal
13. Secondary Entry Point – Lakeshore Residence Halls gateway
14. Shoreline Access Feature
15. Overlook Deck
16. Porter Boat House piers (extant)



Proposed Circulation, Enlargement Two:

- 17. Seating Area/Overlook
- 18. Elm Drive Terminus Overlook
- 19. New Quadrangle Gathering Space - Shoreline Access, Overlook
- 20. Willow Beach Gathering Space; canoe and dinghy storage for mooring fields, seasonal pier storage in parking area
- 21. Tertiary Entry Point from Natatorium
- 22a. Tertiary Entry Point along Willow Creek Path
- 22b. Tertiary Entry Point along Willow Creek Path
- 23. Willow Creek Overlook (east) – Open Space, Seating
- 24. Willow Creek Overlook (west) – Open Space, Seating



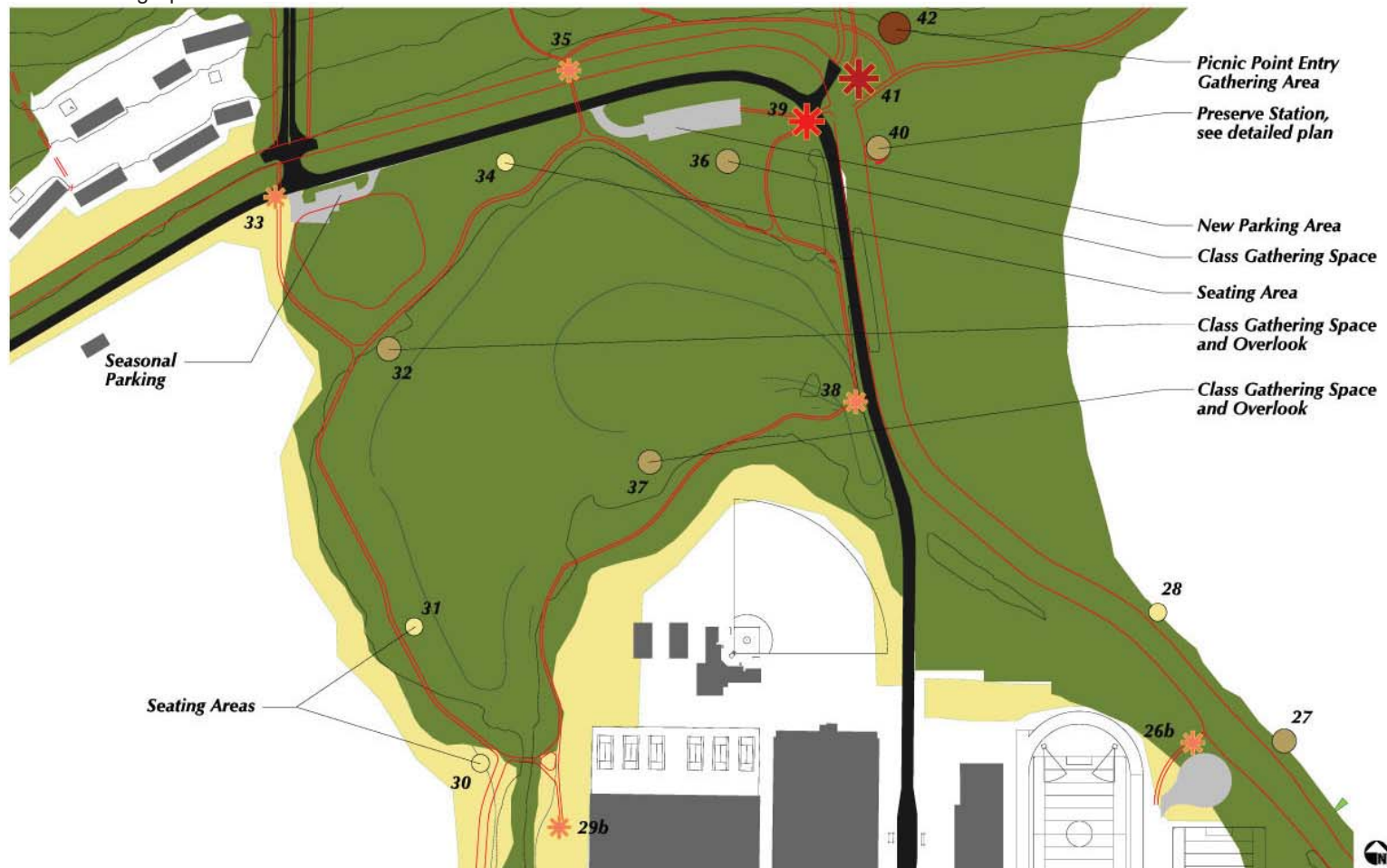
Proposed Circulation, Enlargement Three:

- 25. Triangle Marsh Overlook - Seating
- 26a. Tertiary Entry Point - New Union West
- 26b. Tertiary Entry Point from athletic fields
- 27. Boat Launch – Open Space, Overlook, Lakeshore Access
- 28. University Bay Overlook – Seating
- 29a. Tertiary Entry Point to Class of 1918 Marsh
- 29b. Tertiary Entry Point at Nielsen Tennis Stadium/Class of 1918 Marsh



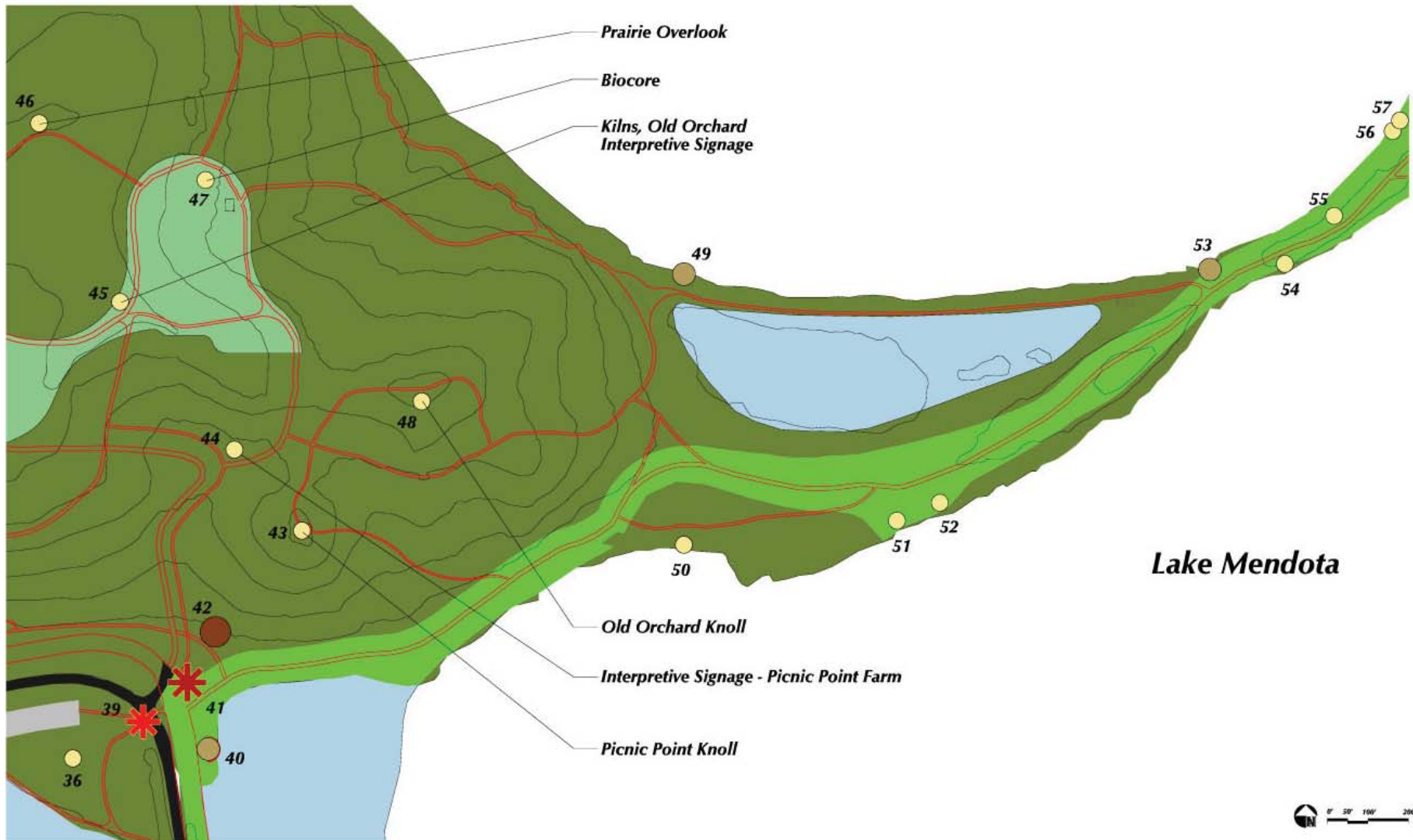
Proposed Circulation, Enlargement Four:

- 30. Class of 1918 Marsh Group Gathering Space - Interpretive Signage
- 31. Class of 1918 Marsh Group Gathering Space - Interpretive Signage
- 32. Class of 1918 Marsh Small Group Gathering Space - Overlook
- 33. Tertiary Entry Point at Marsh
- 34. Class of 1918 Marsh Seating Area
- 35. Tertiary Entry Point at Bill's Woods
- 36. Class of 1918 Marsh Group Gathering Space
- 37. Class of 1918 Marsh Group Gathering Space - Overlook
- 38. Tertiary Entry Point at Class of 1918 Marsh
- 39. Secondary Entry Point – Class of 1918 Marsh, reconfigured parking
- 40. Preserve Station (preferred location) – Interpretive Center, Gathering Space, Overlook, Restrooms
- 41. Primary Gateway – Picnic Point
- 42. Picnic Point Gathering Space



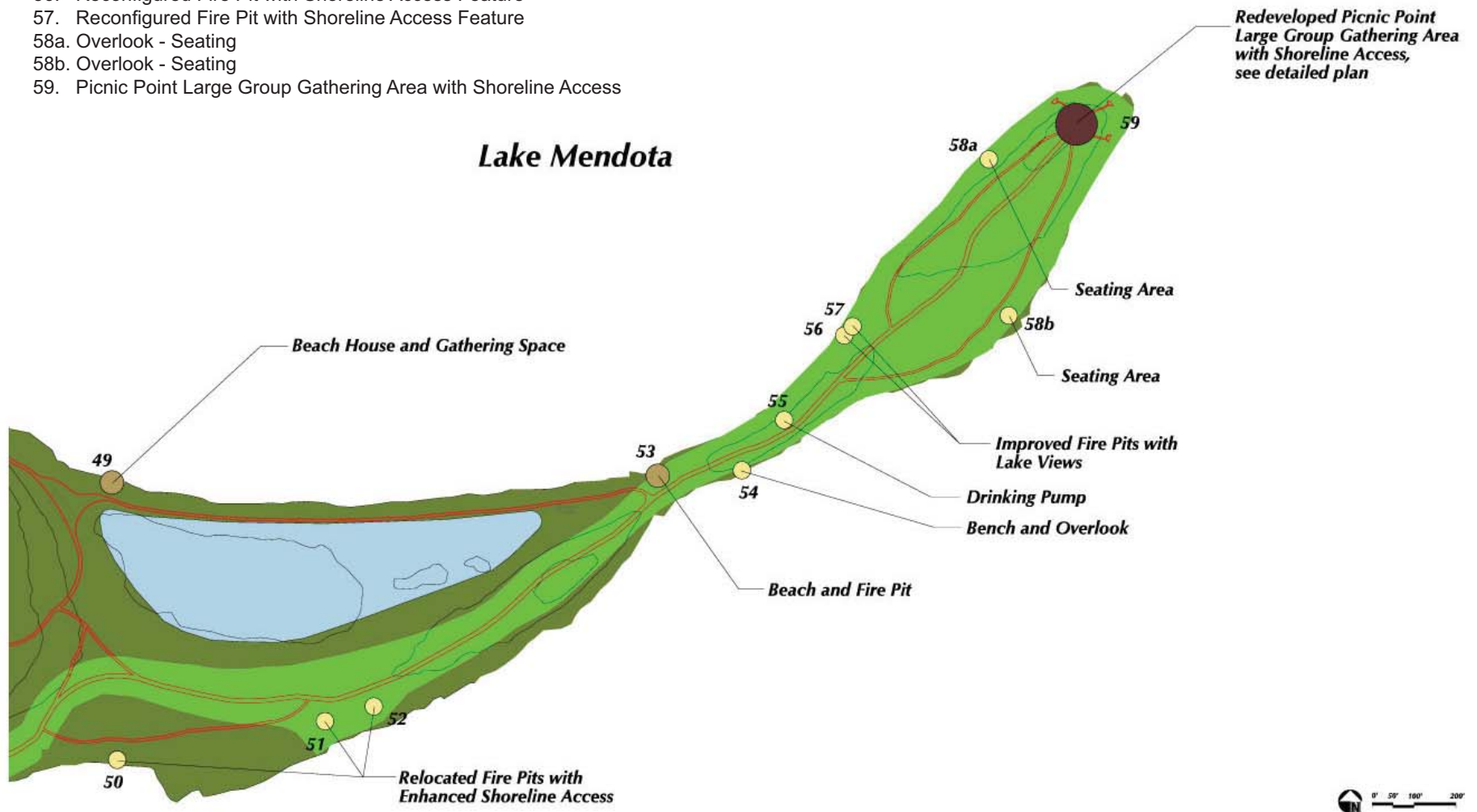
Proposed Circulation, Enlargement Five:

- 43. Picnic Point Knoll
- 44. Interpretive Signage - Picnic Point Farm
- 45. Kilns, Old Orchard and Interpretive Signage
- 46. Prairie Overlook
- 47. Biocore
- 48. Old Orchard Knoll



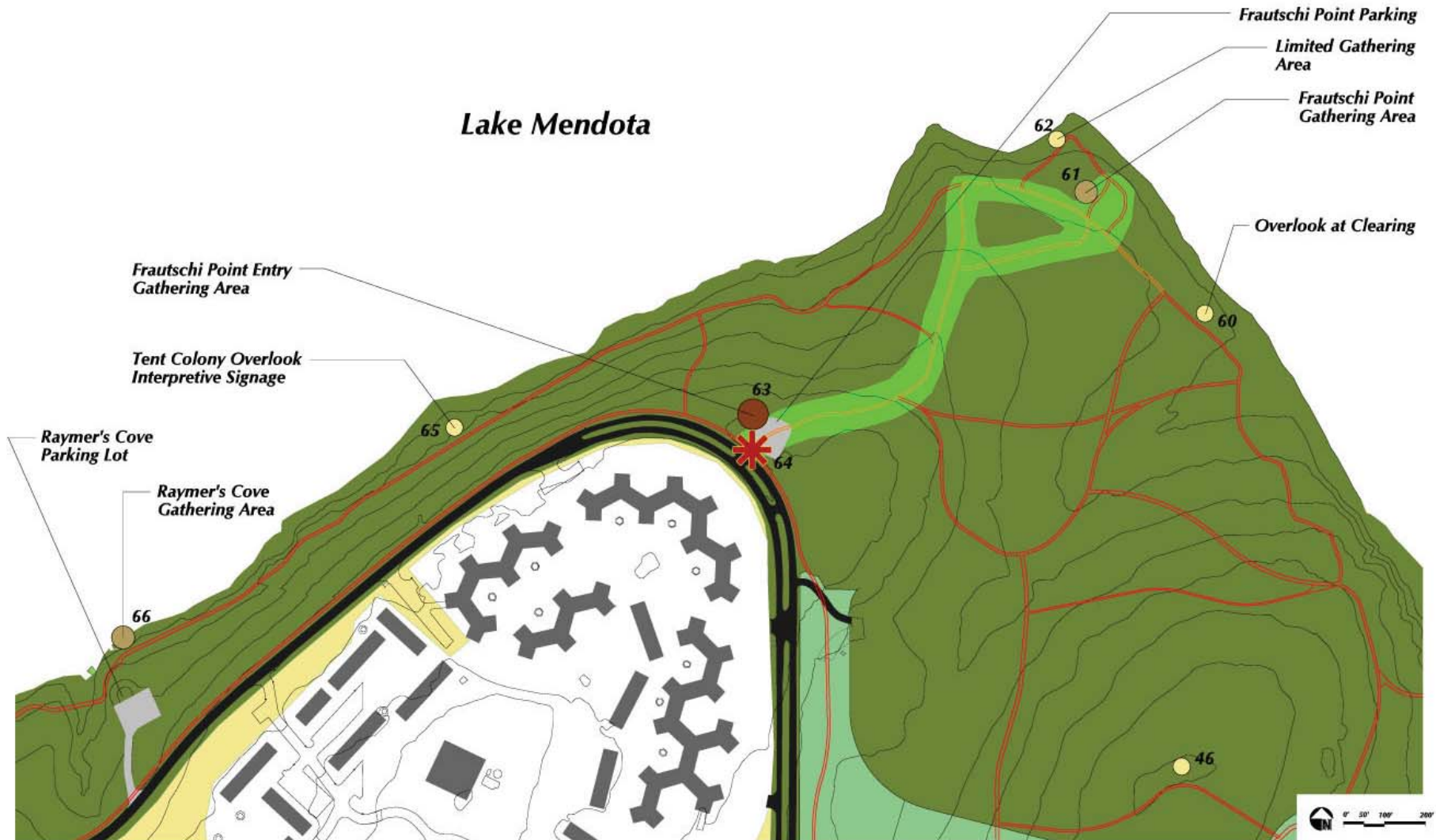
Proposed Circulation, Enlargement Six:

- 49. Beach and Gathering Space
- 50. Reconfigured Fire Pit with Shoreline Access Feature
- 51. Reconfigured Fire Pit with Shoreline Access Feature
- 52. Reconfigured Fire Pit with Shoreline Access Feature
- 53. Beach and Fire Pit
- 54. Overlook - Seating
- 55. Drinking Pump (extant)
- 56. Reconfigured Fire Pit with Shoreline Access Feature
- 57. Reconfigured Fire Pit with Shoreline Access Feature
- 58a. Overlook - Seating
- 58b. Overlook - Seating
- 59. Picnic Point Large Group Gathering Area with Shoreline Access



Proposed Circulation, Enlargement Seven:

- 60. Overlook - Seating
- 61. Frautschi Point Gathering Area – Overlook, Seating
- 62. Limited Gathering Space
- 63. Frautschi Point Entry Gathering Area
- 64. Primary Gateway – Frautschi Point Entry, Parking
- 65. Tent Colony Overlook – Interpretive Signage
- 66. Raymer's Cove – Gathering Area, Overlook, Shoreline Access



Proposed Circulation, Enlargement Eight:

67a. Secondary Entry Point – Eagle Heights Woods

67b. Tertiary Entry Point – Eagle Heights Woods

67c. Tertiary Entry Point – Eagle Heights Woods



Proposed Circulation, Enlargement Nine:

- 68. Secondary Entry Point – Eagle Heights Community Gardens
- 69. Community Gardens Gathering Area - Tables
- 70. Eagle Heights Gathering Area – Garden Arbor



Views and Buffers

Important views, designated as “priority views” were identified in the master planning process. Priority views are iconic views that often point in both directions: both toward the Preserve from outside, and from the Preserve toward the outside. Opportunities exist to open up other views and to create a band of filtered views from Preserve trails that follow the Lake Mendota shoreline. Vegetation management can help restore, maintain, and enhance these views.

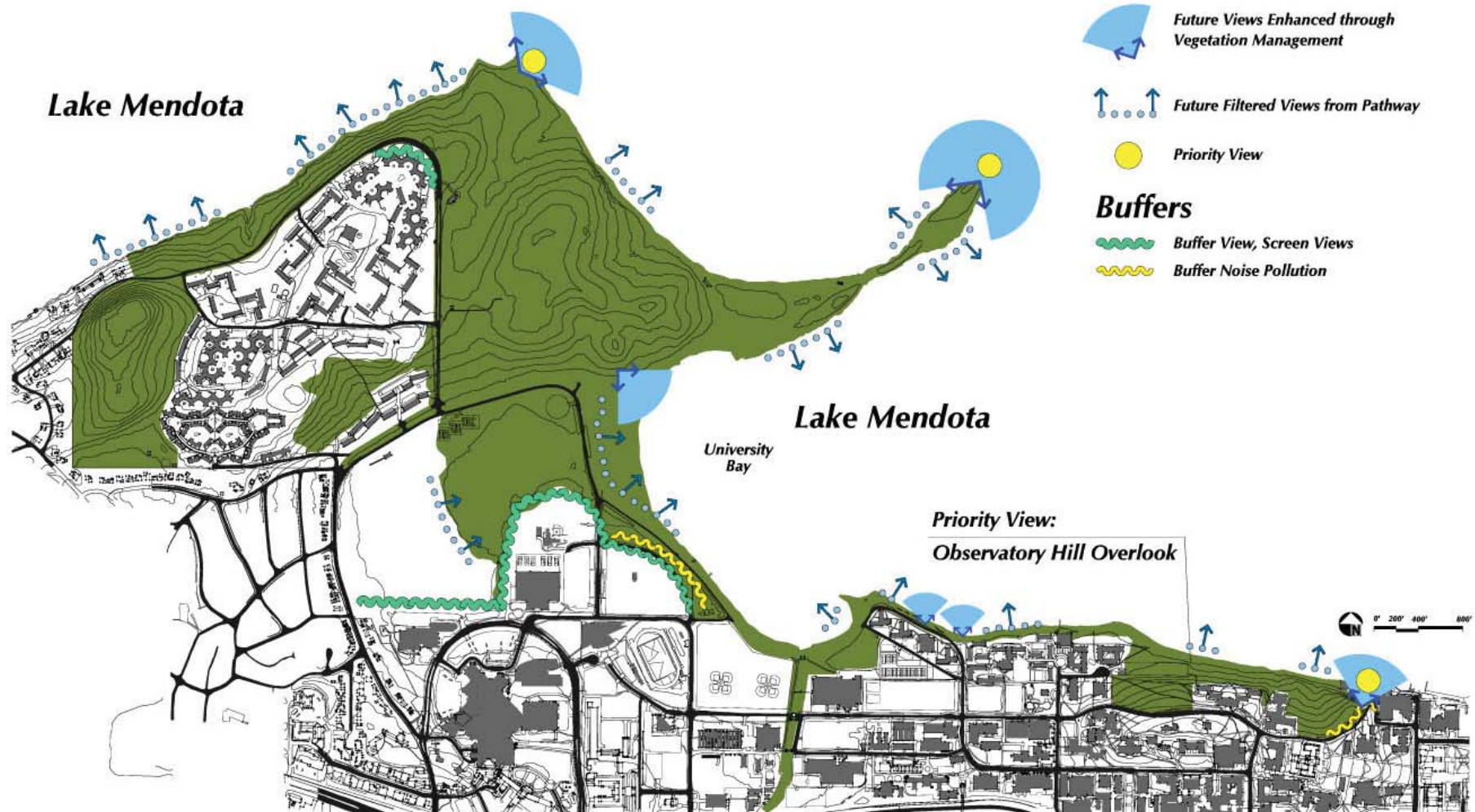
Recommendations:

- Preserve, restore, and manage iconic views:
 - From Observatory Hill
 - From Muir Knoll
 - From Picnic Point toward the rest of campus and the State Capitol
 - From Frautschi Point east toward Picnic Point and across Lake Mendota
 - From the Picnic Point entry across University Bay
- Recognize and manage the spectrum of viewshed opportunities from filtered views to panoramic vistas
- Add interpretive signage where appropriate
- Provide unobtrusive seating at key viewpoints where appropriate
- Buffer unappealing views and sources of noise

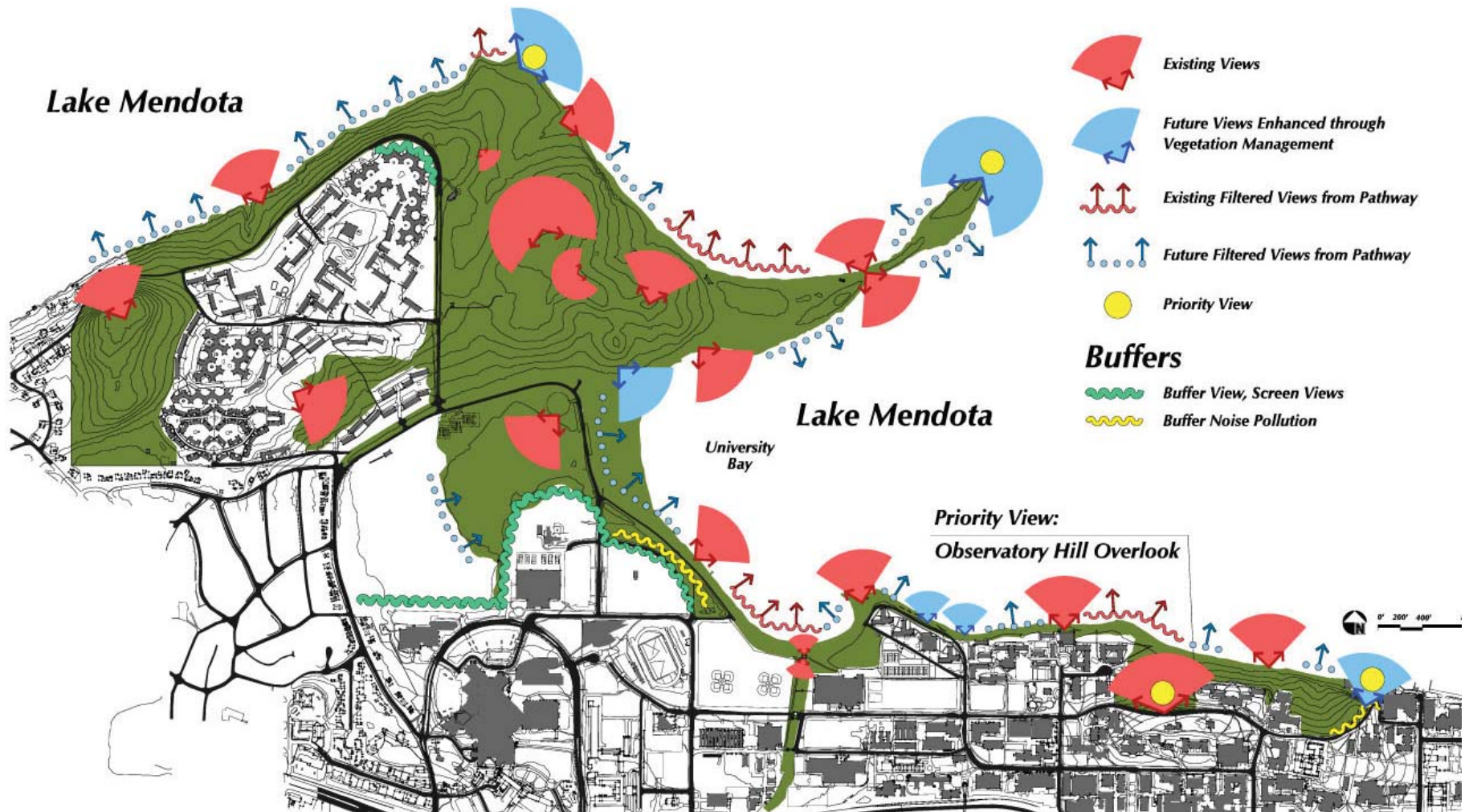


Iconic View: Observatory Hill View to Picnic Point and Lake Mendota

Proposed Views and Buffers



Proposed and Existing Views and Buffers



Vegetation Management

The Report of the Biology Subcommittee of the Lakeshore Nature Preserve Committee serves as the basis for the vegetation management plan and recommendations.

Recommendations:

- Restore appropriate native ecological communities where feasible
- Create the largest possible blocks of contiguous natural landscape to minimize fragmentation, consistent with other uses
- Develop appropriate edge transition communities
- Maintain and create corridors to facilitate movement of wildlife among different areas and communities within the Preserve
- Maximize native biodiversity within community types
- Control invasive species
- Mimic natural processes in landscape management when feasible
 - In particular, reintroduce fire as a management tool not just in prairies and wetlands, but in savannas and dry forests as long as this can be done without undue risk to mature trees and human structures
- Keep records, learn what works, and manage adaptively
- Gather and respond to stakeholder input when considering major changes to landscape character

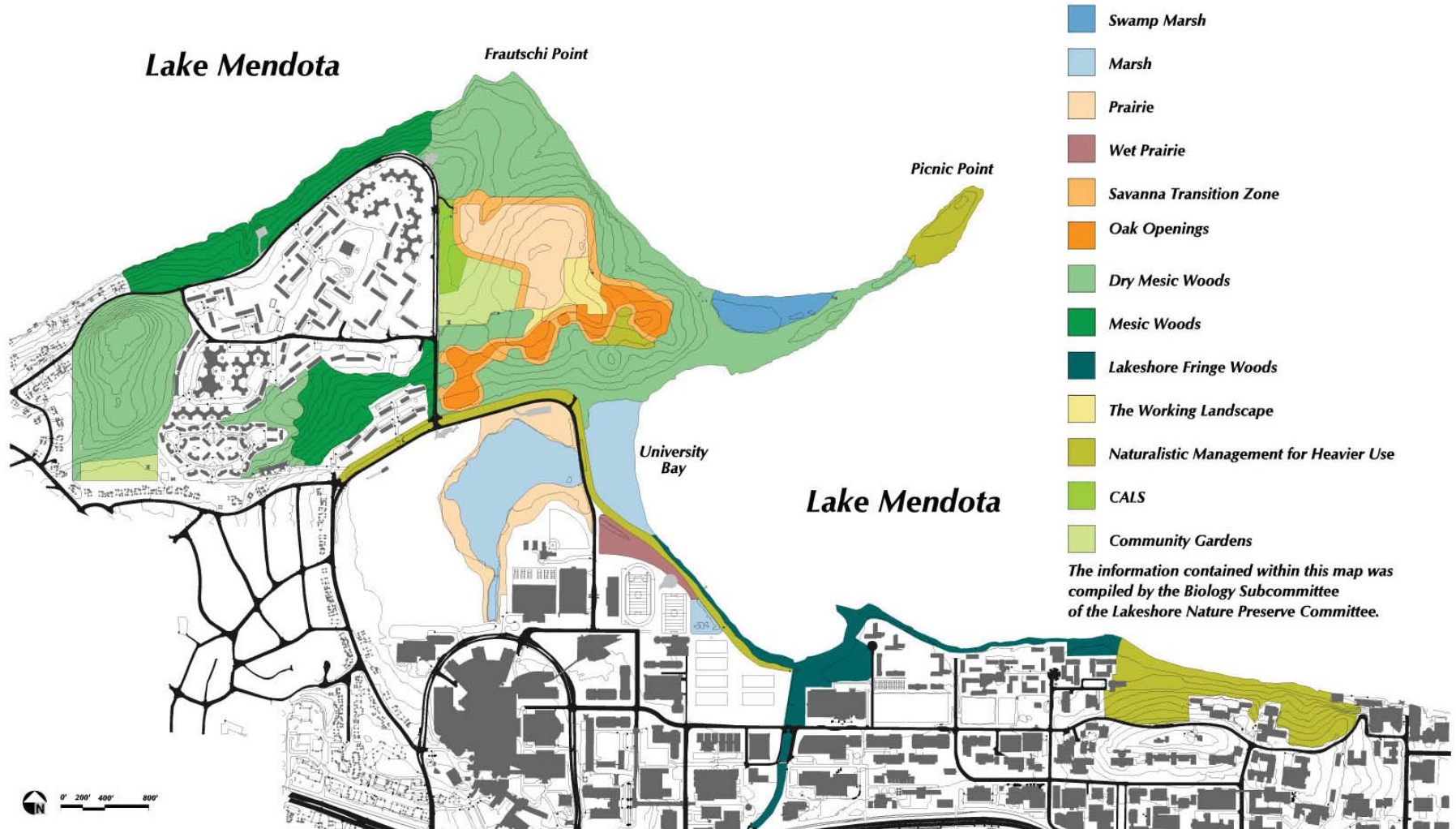


*Heritage Oak before Restoration Work
Photo courtesy of Glenda Denniston*



*Heritage Oak following Restoration Work
Photo courtesy of Glenda Denniston*

Future Vegetation



Special Use Areas

Picnic Point and Class of 1918 Marsh Gateway

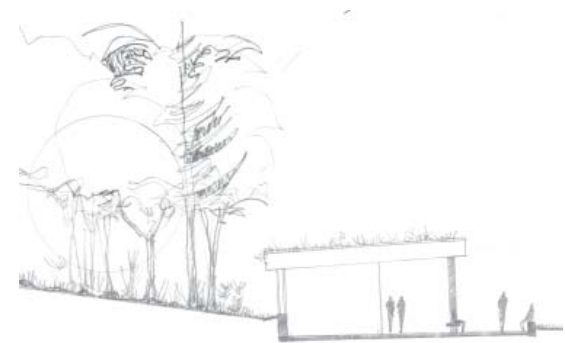
Recommendation: Increase public visibility and awareness of the Preserve by creating a primary entry point.

A New Vision—The Preserve Station

- Welcome visitors with a symbolic gateway that conveys integral identity of the Preserve as a unified whole
- Achieve this goal with an open, unheated structure that is not overbuilt (this is not and should not become a "visitor center")
- Incorporate maps and educational displays
- Provide interpretive information for the whole Preserve
- Provide an overlook as part of the structure to enhance views across University Bay and toward Class of 1918 Marsh
- Provide open-walled gathering space that is sheltered from rain
- Provide year-round restroom facilities
- Use sustainable design, materials, technologies
- Enhance the connection between the Class of 1918 Marsh and Picnic Point
- Rationalize parking for cars and bicycles
- Offer a major gift opportunity for potential donors



Schematic Plan of Potential Location for the Preserve Station Inside Entrance to Picnic Point



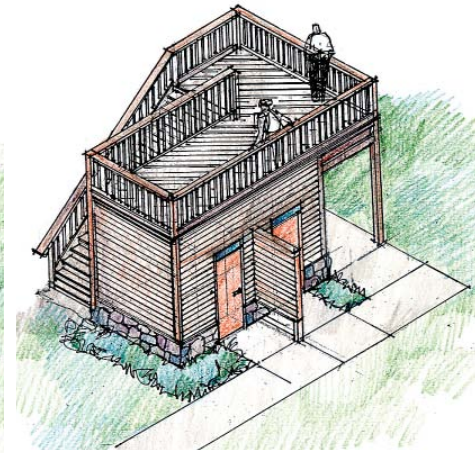
Schematic Section through Vegetated Roof Structure; Potential Location for the Preserve State Inside Entrance to Picnic Point



Schematic Plan of Potential Location for the Preserve Station Adjacent to Class of 1918 Marsh



Schematic Plan of Preferred Location for the Preserve Station Over Present-Day Lot 129



Alternative Schematic Perspectives of the Preserve Station

Gathering Space at Tip of Picnic Point

Recommendation: Provide a large-group gathering space at the tip of Picnic Point while protecting that area from further erosion.

A New Vision—Gathering Space at Tip of Picnic Point

- Design size to accommodate up to 80 people arranged in concentric rings so all can see and hear what happens in center of ring
- Create and maintain significant openings for views to the south, east, and north, with primary emphasis on view of main campus and State Capitol
- Preserve major trees and overall massing of vegetation
- Remove invasive shrubs
- Incorporate naturalistic turf in high-traffic areas to maintain green appearance while accommodating heavy visitation
- Provide controlled, hardened access to water without contributing to slope erosion
- Stabilize shoreline
- Utilize natural/recycled materials
- Provide unobtrusive seating



Schematic Plan and Section for Large Group Gathering Area at the Tip of Picnic Point

Frautschi Point Gathering Space

Recommendation: Provide a medium group gathering space at Frautschi Point

A New Vision—Frautschi Point

- Design size up to 20 people
- Design for views of Lake Mendota and Picnic Point
- Utilize natural/recycled materials
- Enhance interpretive signage
- Preserve existing oak trees
- Stabilize shoreline
- Provide seating



Schematic Plan and Section for Medium Group Gathering Area at Frautschi Point

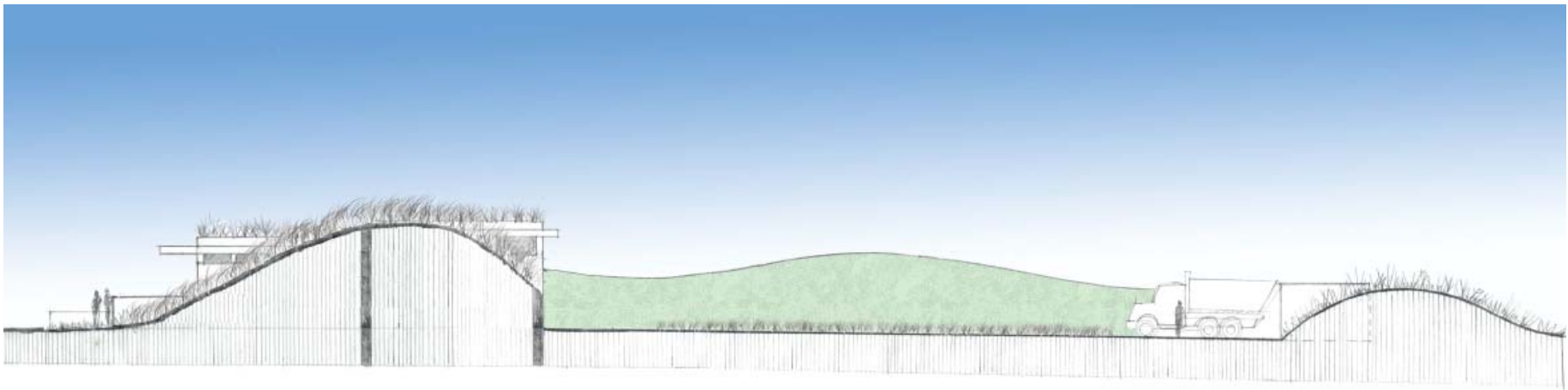
Physical Plant Staging Area

A New Vision—Environmentally Responsible Resource Staging Area:

- Consolidate storage footprint
- Manage storm water runoff within the staging area
- Use berms and natural landforms to buffer noise and visual impacts
- Implement sedimentation filters
- Provide small covered storage space within berm for Physical Plant, Biocore and Eagle Heights Community Gardens
- Rebuild roadway and shoulders for sustainable use to and from Picnic Point entrance



Schematic Plan for Physical Plant Staging Area



Schematic Section through Physical Plant Staging Area Depicting Bermed Perimeter and Double-Sided Structure

Design Guidelines for Site Amenities

Appropriately designed landscape features and site improvements within the Lakeshore Nature Preserve will enhance the enjoyment of this treasured area. These Design Guidelines outline important considerations for the development of trails, gathering spaces, and site elements, such as seating walls, steps, benches, fire pits, waste and recycling containers, bike racks, and signs.

Character and scale of site improvements, material selection, and location of landscape features should be appropriate to the varying landscape types within the Preserve and its unique context. Proposed improvements should be designed as extensions of their surroundings, utilizing materials and forms that appear as natural, unobtrusive elements within the Preserve. Wherever possible, materials should be 'of the site' – either found materials or naturally occurring. Materials should also be durable and easily maintained over time.



Wheeler Council Ring at the UW-Arboretum uses can serve as an example for Preserve gathering spaces.

Photos courtesy of Nan Fey (top) and William Cronon (bottom)



Access to Shoreline

Seating walls

Seating walls are an integral part of the gathering spaces for groups of all sizes. In addition to providing seating, these walls help delineate the gathering spaces and provide a barrier to the surrounding landscape. The Council Ring offers an appropriate form for seating walls.

Design Intent:

- Integrate seating walls within designated gathering areas - Picnic Point and Frautschi Point.
- Design gathering areas to function for group sizes to be accommodated.
- Construct seating walls from local limestone in a random ashlar pattern with reinforced concrete footings and mortar joints where a clean, finished look is desired; or large slabs set at grade where a rustic setting is desired.
- Provide irregular shaped limestone pavers (2.5 inches thick) without mortar joints for paving within the gathering spaces to prevent soil compaction and erosion.

Stone Steps

Steps constructed of large limestone slabs allow pedestrians a safe access to the water's edge at the tip of Picnic Point and along the Howard M. Temin Lakeshore Path while protecting the shoreline. The stone should be natural in finish and smooth enough for safe passage. The stone should fit into the side slope of the terrain as step elements to prevent slope erosion, soil compaction and damage to vegetation.

Design Intent:

- Incorporate natural/irregular shaped stone slabs (approximately 8 inch height by 18-24 inch depth) into the existing grade to allow safe and comfortable pedestrian access to the water's edge.
- Integrate larger landing areas (minimum 12 square feet) for every four feet in elevation change and at the bottom of the steps or water's edge, incorporating seating elements.

Paving Materials

Consistent use of sturdy paving materials enhances heavy use areas within the Preserve, improving functionality and aesthetic qualities, as well as meeting sustainability goals. The following paving applications are appropriate for the Preserve.

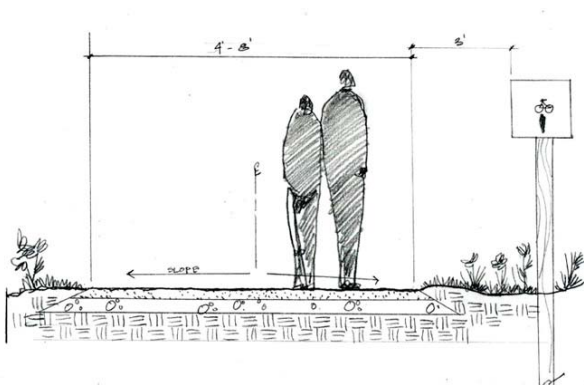
Pedestrian Trails

It is very important that trails be no wider than their level of use requires; and visitors should not ordinarily expect to walk two abreast on most trails in the Preserve.

The use of leaf litter and soil for secondary pedestrian trails within the Preserve blends well with the setting. The low impact and easily replaceable material also supports the sustainability goals of the Preserve.

Design Intent:

- Soft-surfaced trails will be constructed of wood chips, shredded hardwood, crushed limestone screenings, or leaf litter and earth.
- Hard-surfaced trails will be constructed of permeable asphalt pavement (follow recommendations above) or a permeable modular paver system.
- Boardwalks can be constructed in wet areas.
- Use low-impact methods of applying materials to minimize damage to surroundings.
- Widths for pedestrian footpaths should be 2'- 5', depending on the level of use.



Schematic Cross-Section through Multi-Use Trail - Bicycles Allowed

Multi-Use Trails – Bicycles Allowed

The use of crushed stone paving for multi-use trails within the Preserve is recommended to complement the character of their setting and support the sustainability goals and storm water management principles of the Preserve. Existing crushed stone pathways should be modified to conform with the following recommendations.

Design Intent:

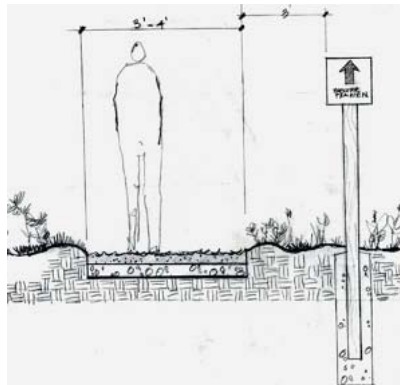
- Subgrade should be designed by engineers to the same standard as a paved trail surface. Special attention should be given to drainage to ensure all water is conveyed away from the trail.
- Install geotextile fabric to stabilize the pavement base in wet areas or areas with poor soils.
- Widths for primary pedestrian paths should be between 4'- 8'.

Multi-Use Trails – No Bicycles Allowed

This classification covers multi-use routes which are intended to carry service vehicles as well as pedestrians in the Preserve. These routes do not accommodate bicycles. It is recommended that the only trail to be paved in this category is the access route to the Physical Plant Staging Area.

Design Intent:

- Permeable paving options include mown turf, limestone and shredded hardwood. Evaluate appropriate use of paving material according to the soil conditions, maintenance cost and ability to support use.
- If heavy vehicular paving is considered to be the best choice, a permeable asphaltic concrete is recommended. Implement with the following standards:
 - Use permeable asphaltic pavement on a sufficient base course to accommodate anticipated vehicle types. Re-use existing materials for base courses or pavement aggregates.
 - Widths for multi-use trails should be between 6'-10'.
 - Identify the thickness of the asphalt concrete and base course on a soils report and functional requirements to maximize pavement life.



Schematic Cross-Section through Pedestrian Trail

Benches

Benches are an integral part of the pedestrian circulation system, providing seating opportunities along trails, at specific vantage points, and at designated gathering areas. The recommended family of benches for the Preserve consists of custom benches made of stone and wood, benches fabricated from wood timbers or slats, and rustic log benches. Custom benches should be placed in higher use areas where a stronger design element is desired. Wood benches should be used along paved walks, the Howard Temin Lakeshore Path and in areas where important views will not be impacted. All benches along major pedestrian pathways should have backrests and armrests. There are several locations where a wood bench, without back, is appropriate in the Preserve. Sawn and whole logs could also serve as informal seating in the Preserve.

Custom Benches

Custom benches are appropriate where higher traffic is anticipated and a stronger visual impression is desired. These heavy duty benches are suitable as memorial elements.

Wood Bench

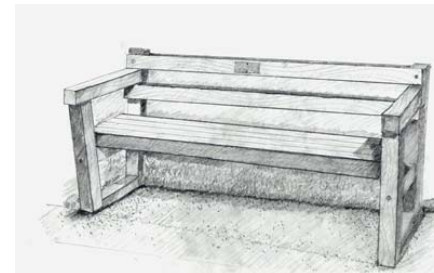
The wood bench with large heavy-duty members complements the character of the Preserve in form and style, and it is useful where a formalized seating element is desired. The wood bench is appropriate for use throughout the Preserve.

Log Benches

Sawn or whole logs can serve as auxiliary seating in woodland and naturalized areas of the Preserve. These can either be horizontal logs, 4-feet to 6-feet in length, or log rounds standing on end, approximately 18-inches to 2-feet in height.



Custom Bench



Wood Bench for High-Use Areas



Wood Bench for Moderate-Use Areas



Log Bench for Low-Use Areas

Fire Pits

Fire pits are allowed in designated pedestrian gathering areas within the Preserve. The fire pits should be contained in a heavy-duty cast iron fixture or be built into the grade and surrounded with a paved stone area.

Design Intent:

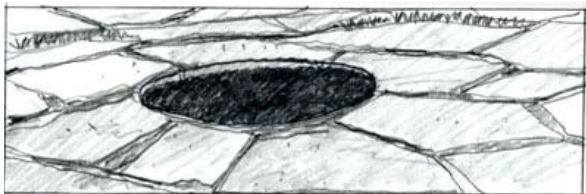
- Integrate fire pits into gathering areas with paved surfaces.
- Integrate and imbed heavy duty cast iron fire pits into stone paved surfaces.

Standard Preserve Waste Container

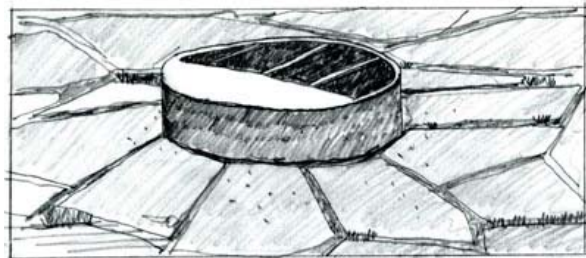
A round, wood and steel container is the recommended standard for waste receptacles in higher use areas of the Preserve, meeting the need for durability and volume, while offering some visual transparency. Waste containers should be incorporated into gathering spaces and trailheads.

Design Intent:

- Limit the visual clutter of containers in of the Preserve.
- Integrate containers into gathering areas, major pedestrian walks, and trailheads.
- Locate containers with careful attention to their servicing needs and potential aesthetic impact. Re-evaluate location of containers as needed to meet changing requirements.
- Provide recycling containers where appropriate in the Preserve.



Open, Integrated Fire Pit



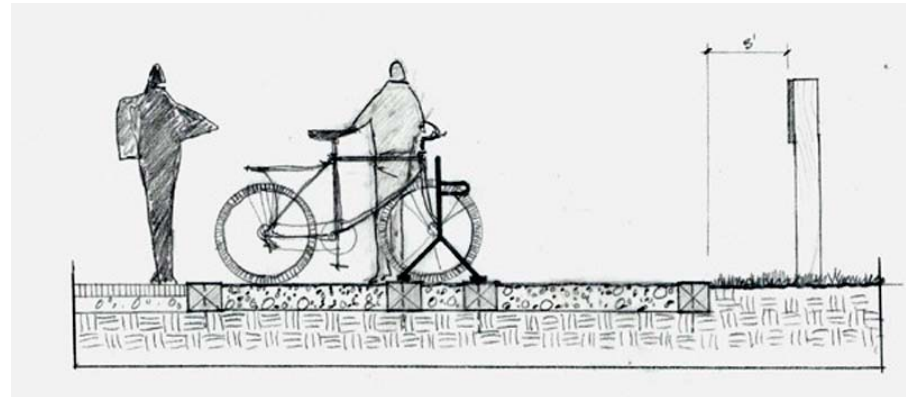
Metal Grate for Fire Pit

Bicycle Racks

Bicycle racks are an important component within the campus circulation system. The location of secure bike racks with regulatory signage at key entry points of the Preserve can help eliminate undesired bicycle use on pedestrian paths. Multiple racks should be located outside the primary entry to the Preserve at the base of Picnic Point, the Frautschi Point entry area and at the Preserve Station.

Design Intent

- Locate to minimize visual clutter and circulation conflicts.
- Integrate the layout and configuration of the bike racks with the pedestrian circulation system.
- Provide consolidated bike parking areas where possible.
- Construct according to campus standard with a galvanized finish to withstand exterior conditions.
- Construct permeable bike parking surfaces where feasible, using materials such as modular pavements or crushed stone with timber or stone edge restraints.



Bicycle Racks for the Preserve Conform to UW-Madison Campus Standard

Drinking fountains

Outdoor drinking fountains are traditionally custom features, unique and detailed for their specific setting. These elements can have high maintenance requirements and should be located judiciously to serve high use areas, such as the primary entry at Picnic Point, the Preserve Station. The location of existing water lines and the cost of extending water services will limit opportunities to install drinking fountains.

Design Intent:

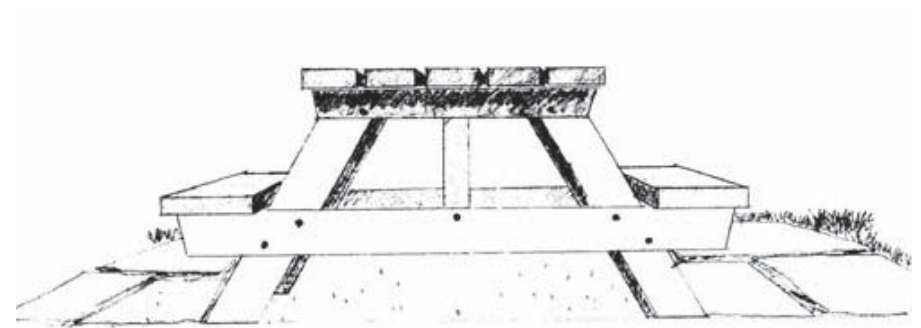
- Integrate as landscape features near gathering areas or adjacent to significant walk intersections.
- Select drinking fountains suitable for all users, meeting accessibility requirements.
- Construct from high quality, durable materials with weather-resistant and easily maintained components.

Tables

Tables serve as additional opportunities for seating and studying in quiet landscape settings. Wood tables may be appropriate for use in some areas within the Preserve, particularly near the Eagle Heights Community Gardens.

Design Intent:

- Construct of heavy timbers, suitable for exterior use, with attached benches.
- Tables can be stationary, surface mounted on permeable surfaces, using materials like crushed limestone or limestone pavers; or moveable by users.

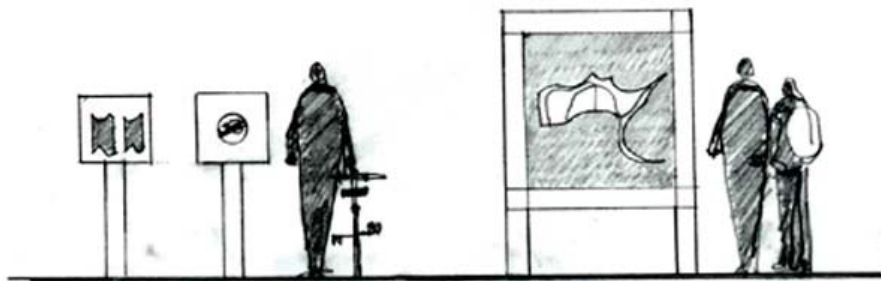


Traditional Wooden Picnic Table

Signage

The signage program organizes the multitude of exterior informational, directional, and regulatory signs within the Preserve. The system is made up of diverse elements, allowing variation of expression, with a design hierarchy to provide clarity within the Preserve environment. The signage vocabulary should be easily understood by visitors familiar to the Preserve as well as first-time visitors. This program identifies four primary signage types.

- **Informational signage:** These signs provide the first introduction to the Preserve. They include locational information such as road and trail names, a map of the Preserve and area identification. This category can also include helpful information such as safety/protection tips, hours of use, emergency phone numbers, and current events.
- **Directional signage:** These signs direct visitors from surrounding areas to the Preserve, special Preserve features, path routes, parking, and bus stop locations. The category includes directional signage, both outside and within the Preserve.
- **Regulatory signage:** These signs include public and permit parking information, use limitations, accessibility signage, and all standard campus regulatory signs.
- **Educational signage:** These signs include information on specific biological and cultural resources within the Preserve, or stewardship activities underway.



Informational Signage Intent can be Conveyed Using a Standard Language of Symbols Rather than Written Text

Way finding Signage

Informational and directional signage is integrated into structures or can exist as freestanding elements in the landscape.

Design Intent:

- Locate signs to minimize the visual impact while maintaining visibility.
- Use heavy wood treated timbers (6" x 6") for posts, and use recycled composites as materials for sign graphics base plates.
- Locate freestanding signs off of walk edges and outside of pedestrian spaces.
- Use directional signs to guide visitors to the Preserve and offer clear direction to navigate easily within the Preserve, though avoid overuse of signs.



Educational and Interpretive Signage within the Preserve can be of the Same Size and Quality as Informational Signage

Class of 1918 Marsh Guidelines

Introduction

The Class of 1918 Marsh - an important forerunner of the Lakeshore Nature Preserve - was established in 1972 to explore and demonstrate the ability of human beings to sustain wildlife and natural habitats in a challenging urban environment. A pioneering example of wetland restoration, it was designed to encourage a diversity of wetland plants and animals, help protect University Bay from sedimentation, and augment the role of University Bay as a stopover on the Yahara-Rock-Wisconsin River flyway.

Since 1972, UW-Madison faculty and staff have helped manage soil, water, and nutrients at the marsh to approximate the biological conditions of a natural wetland. An interdisciplinary academic team has been studying the marsh with their classes for years, but has often lacked the means for major restorative efforts. They have now put together a new and challenging vision for marsh renewal, using this living laboratory to experiment with several different approaches to wetland restoration. The vision and goals this group has developed underpin the restoration plan outlined in this document.

When the marsh was established in 1972, a sedimentation basin was created to filter water to protect both the marsh and University Bay. As development has increased on the western end of campus, the water quality of runoff has changed significantly, requiring more active management by the University. The new plan presented here proposes to capture the relatively clean rain water falling on the roofs of nearby University buildings, directing that water through a cooling trench before it reaches the marsh. Our ability to capture roof water in this way derives from the expansion of the hospital complex, and is funded as part of construction costs. This enables us to improve water quality in the marsh, and also to exercise greater experimental control as we try different techniques for managing the wetland ecosystems.

In the original marsh plan, trees and shrubs close to the marsh were thought to represent potentially undesirable barriers to access for some bird communities. In the intervening years, though, it has become clear that they also provide desirable nesting habitat. Furthermore, buildings south of the marsh may also have changed access particularly for some species of waterfowl. Biological plans for the marsh should reconsider the role of trees and shrubs along the open wetland and evaluate the effects of the changed surroundings.

Pedestrian paths are planned to allow campus and community members, hospital patients and their families, and visitors to the campus in general, the chance to enjoy the marsh and its wildlife. The marsh will continue to be easily accessed from the Howard M. Temin Lakeshore Path and from the base of Picnic Point. Parking will be available nearby.

History

Naturalists James and Elizabeth Zimmerman provided much of the leadership for designing and establishing the Class of 1918 Marsh. Because one of their chief goals was to share their enjoyment and understanding of this intricate ecosystem with others, in 1972 they wrote, illustrated, and installed 32 interpretive signs for visitors. Although these signs have long since vanished, their original texts still offer an elegant explanation of the history, ecology, and purpose of the marsh. The following italicized excerpts from the Zimmermans' signs convey, in their own language, the motivations that led to restoration of the marsh, and suggest the extensive alterations this site has undergone to become what it is today.

The purpose of this small wet marsh—amid playing fields, parking lots, and roads and buildings—is to foster an appreciation of marshes and to demonstrate how wildlife and people can coexist. With proper understanding and public cooperation, the similar needs of man and of wildlife can be met side by side: living space, food, protection from hazards and disturbance, and a clean environment.

The developments here, including earth-moving, the nature trail, interpretation signs, and plantings, were made possible by generous donations from the UW Class of 1918.

This marsh is noteworthy in five ways:

- 1. It is a man-made restoration; successes and failures may be studied here for future understandings of the ecosystem.*
- 2. It is an educational facility, bringing people and the natural environment intimately together. Here man may also derive recreational benefit, while wildlife may eventually become more accustomed to man, like the chimney-nesting storks of Europe.*
- 3. It would [be] too small a marsh to hold much wildlife were it not for its proximity to a complex of lakes in Yahara-Rock-Wisconsin River flyway. Attracted to the waterway, and perhaps bound to it by traditions handed down, large numbers of water birds expect to find and almost desperately seek marshes for resting, food and nest sites. So few marshes are left that every small one receives abnormally intense use.*
- 4. It is now in the early very weedy stages of development following recent construction causing erosion and siltation. The upland and lowland weeds are not being cut because: (a) they provide important wildlife foods and immediate temporary cover; (b) natural succession can be studied here. Stabilizing of the vegetation and clearing of the water will come only with cessation of construction and soil disturbance in the entire watershed.*
- 5. Its existence is testimony to the sizeable body of people in city and on campus who appreciate nature. We hope this project will encourage marsh restoration and interpretation elsewhere.*

This entire nearly level basin (some 80 acres) was once filled with peat. It is bounded on the west and north by University Bay Drive, and on the southeast by the Natatorium and Marsh Creek. On the south it once graded up into prairies and fields about where Marsh Lane is now.

Peat accumulates where waterlogging prevents access of oxygen so that bacteria cannot feed on plant remains. Kept wet by runoff and springs, the basin had been a soggy area for over 10,000 years, although it was sometimes above the level of Lake Mendota. As the last glacier retreated, damming the Yahara Valley with deposits of mud and gravel, this basin was probably a bay of the lake at a high-level stage. Study may show that the first peat to be laid down was of sphagnum and wiregrass sedge, containing pollen of spruce and fir; for most of our peat deposits began as floating bogs like those of bays in our present northern lakes.

The lake may have backed up to higher levels at more recent times because of dense vegetation and beaver dams at the outlet; but around the turn of the century, it was getting lower because of erosion at the outlet. This basin was probably a sedge meadow then. In 1912, the Tenney Park Locks were installed, raising the lake above the level of this peaty basin.

To put the meadow to use, a leaf was taken from the thrifty Dutch: tile the fields, build a dike and use a pump. The filled dike, built on an ice-push-up-ridge, became University Bay Drive; the faithful pump in the metal shed nearby continually removed seepage coming from the peaty field and from the lake for over 50 years. A sign on the pumphouse explained this pilot land reclamation project. With proper fertilization, the peat field yielded excellent crops of corn. Unfortunately, not all lowlands had a lake to protect them from summer frost damage; so following the University's advice to farm and drain the lowlands did not always meet with such success elsewhere.

Farming had increased wildlife abundance because the field provided abundant food- both waste corn and the weeds perpetuated by soil disturbance. Shorebirds, ducks and geese that circled the lake would drop in at the field in spectacular numbers. The adjacent and slowly encroaching weedy University Dump (now Lot 60) and the marsh ditches helped also, and together they attracted bird watchers from far and wide to see rarities like pipits, snow buntings, snow and blue geese, phalaropes, white crowned and Harris' sparrows, and short eared owls. Pheasants thrived on the corn also.

Wildlife use intensified in 1967 when progressive oxidation of the drained peat deposit had finally caused the deeply-laid drain tiles to appear on the surface, interfering with plowing and harvesting machinery. The pump was turned off, and the flooded ripening crop of corn was soon discovered by all of Madison's mallards and teal, which began commuting daily over the city. One could stand at Lot 60 and see hundreds of mallards descend from the sky at sunset. Still more migrating waterfowl came in from the lake that fall, and in the spring of 1968, many water birds stayed to nest as the 30 acre flooded field began to provide water plants for cover. This became the spot to see, with ease,

beauties like green-winged teal, ruddy and shoveler ducks, and the elusive gallinules and rails of the deep water marsh.

Argument arose over the use of the land, which was avidly sought for parking space and athletic fields, as well as for wildlife habitat accessible to biology classes and nature-lovers. The present compromise divides this land between these three uses. To some extent they overlap, since parking makes the area accessible to more wildlife viewers for recreation, and the playing fields, when not in use, provide quiet buffering open space around the present small marsh for the flying, feeding and roosting needs of birds.

Vision and Goals History

The Class of 1918 Marsh has long provided an exceptional site for faculty and student research, and for class exercises in habitat restoration. It also offers wonderful opportunities for marsh visitors to explore and appreciate nature. Since 1997, instructors working there have informally designated their collective venture "*The Urban Marsh Field Station.*"

Vision - The Class of 1918 Marsh will provide:

- An important test of our ability to provide high habitat diversity in an urban wetland.
- An opportunity to interpret wetland ecology, restoration, and management for students and visitors, consistent with the educational mission of the overall Preserve.
- A good quality wetland complex comprised of diverse biological communities, each with its appropriate organisms.

This is a long-term vision that will play out over perhaps 50 years. We anticipate repeated attempts to test alternative management policies and biological communities. We anticipate creation of six zones of wetland plant communities and open water areas, specifically:

1. wet prairie
2. fen (plan for at least 3 potential fens)
3. sedge meadow
4. emergent marsh
5. floating and submerged aquatic vegetation
6. open water

Goals – the marsh plan seeks to:

- Improve the overall quality of the flora, fauna, and hydrology of the marsh
- Facilitate appropriate visitor access to the marsh
- Compartmentalize marsh communities to facilitate controlled scientific research
- Encourage multidisciplinary experimentation
- Control water quantity for experimentation
- Sustain high-quality water in and out of the marsh
- Test and promulgate techniques for effective wetland restoration
- Integrate marsh restoration with overall Preserve management

To achieve this vision, a reliable supply of high-quality water is required.

- Roof and ground water will supply the system. Roof water is suitable so long as it has had the opportunity to cool. The system for delivering roof water should ideally provide a way to divert from the marsh the earliest rainfall falling on roofs, which tends to be undesirably warm or eutrophic.
- Diverse water sources and multiple valves should enable control of the amount, timing, and location of water delivery.
- Where pumping is required, “green” energy sources should be considered as appropriate.
- A groundwater pump and the ability to deliver water for fen restoration should be considered, though such a pump, if provided, should only be used under drought conditions.
- Draw-downs should mimic natural hydrological conditions.
- The existing pumping system that removes water from the system should be retained.
 - Periodic draw-downs should occur to expose mudflats in the marsh.
 - During appropriate seasons, water from the wetland might possibly be applied to adjacent recreational fields as a strategy for the draw-down and filtration by surrounding plant communities of nutrient-rich water.
- Poor quality runoff should be treated or diverted away from the wetland. To accomplish this:
 - The wet prairie encircling the marsh should be designed to absorb water from the recreational field.
 - Nutrient-rich surface runoff, including water from Nielsen Pond, should be diverted away from the wetland.
- When possible, snow pile and snowmelt influences on the marsh should be minimized. Although changes in campus transportation strategies and parking will alter the amount and composition of snow cleared from campus roads and walkways, there is likely to be an ongoing need to pile snow in the vicinity of the marsh and University Bay. Runoff from snowmelt should be monitored for salt and other pollutants, and different strategies should be explored for minimizing the impact of this meltwater on adjacent wetland ecosystems.

Principles for Implementation of Basin Dredging and Restoration:

- Allow dredging to deepen the open-water habitat.
- Create the deepest water on the east side of the site, to connect with pumps to lower water levels.

- Remove invasive plants and seed sources from shorelines.
- Minimize negative effects on wildlife; in particular, make sure there is sufficient open water distant from marsh margins to provide adequate waterfowl habitat.
- Pay attention to seasonal patterns of use by birds in scheduling dredging.
- The upland-wetland-open water gradient should be gentle.
- Avoid steep slopes.
- Avoid armoring soil surfaces.
- Re-sculpt the bottom of the marsh.
- Allow some on-site disposal of dredge spoils.
- Recognize that dredge spoils will be nutrient rich and manage accordingly.
- Consider over-excavating elevations to be able to supplement surface soils.
- Consider modifying soil texture, moisture, and nutrient levels, but do not assume that such treatments are necessarily required for effective management.
- Do not assume that sedge meadow must be established on peat.

In manipulating water levels in the marsh, the following biological principles (among others) should be kept in mind:

- Phosphorus in sediments is mobilized by stable water levels. On the other hand, it can flow through this system and be flushed out via pumping.
- Standing water favors invasive hybrid cattails.
- Anaerobic sediment is valuable for denitrification.
- Nitrogen influx enhances reed canary grass, Wisconsin’s worst invasive weed in wetlands.

Conclusion

This plan anticipates that the boundaries of Class of 1918 Marsh will be kept at roughly their current locations. The open spaces of the recreational fields will stay as they are so they can continue to provide valuable educational opportunities and leisure activities for UW-Madison students and others. Together, these recreational lands and the Class of 1918 Marsh contribute to an attractive open space and an expansive vista on the western margins of the campus.

The plan envisions an accessible trail from the south side of the marsh to an observation area so that visitors of all abilities will be able to enjoy the views, the wildlife, and the experience of the marsh.

Finally, this plan reaffirms the vision and values of the far-sighted conservationists who restored and dedicated the Class of 1918 Marsh in 1972. We will continue to care for the marsh, learn what we can from restoring and managing it, and share our knowledge to promote wetland restoration efforts elsewhere.

Conceptual Plan of Wetland Vegetation



APPENDIX

Focus Group Summaries

NOTE: Campus Natural Areas (CNA) is used throughout this summary due to the timing of the input sessions prior to the revision of the name to the Lakeshore Nature Preserve

Administration

29 November 2004, 9:00 a.m.

- Turf North of Lakeshore dorms looks gnarly, but consequences of using fertilizers/herbicides adjacent to the lake are enormous.
- There is no concrete definition of what CNA is—we need a good delineation.
 - What does CNA mean?
 - How can areas within that definitive boundary be managed and maintained?
- CNA Master Plan should give campus the tools to allow the rest of campus to join in. Friends and CNA Committee should not be seen as the enforcers, but rather the facilitators.
 - The overall UW Master Plan talks about four key areas: buildings in the future, utility connections, transportation planning (multimodal) and greenspace.
 - There's a spectrum of greenspaces and open spaces on campus and the CNA falls somewhere within that broad boundary.
 - CNA could link itself to, or relate to other green spaces within campus – courtyards, terraces, urban spaces.
 - It is important to look at the CNA from a campus user and community viewpoint. We want to welcome and define the campus to people, while at the same time maintaining porosity.
 - We should not be afraid to define what we want and don't want to do, especially in key areas i.e. Lakeshore Path, Picnic Point.
 - The University has neglected Picnic Point out of fear of change.
 - Tree removal may be controversial but necessary.
 - Historic pictures show open views.
 - Plan should embrace debates where they are to be had i.e. Lakeshore Path.
 - Erosion control is an issue and needs to be addressed.
 - UW Madison, like the rest of the city, has its back to the lake. When leaves are out, 90% of the view to the lake is blocked.
 - Should we consider creating “test plots” along the Lakeshore Path where a 50' section is cleared to the lake by removing buckthorn and selective trees? Elicit campus feedback.
 - To North of Tripp and Adams dorms may be a good pilot area.
- A swimming dock used to be located near the Kronshage dorm—is there a push to bring that back?
- Bringing back the views and physical access to the lake may be sufficient. Provide seating near lake edge.
- View of the lake from North patio of Liz Water's Hall is completely obscured.
- Safety/Security Issues
 - Need to remove some shrub/understory layer for security purposes.
 - Historically Muir Woods and Muir Knoll a bad spot for incidents.
 - Have assaults and exposures that happen on Picnic Point.
 - Need emergency access to areas in the CNA

- The UW Arboretum as a model
 - Planners worked with police staff, cleared out undergrowth, posted signs.
 - There were no lighting (or over-lighting) solutions at the Arboretum.
 - What are the security expectations of the users?
 - District squads try to get out to Picnic Point at least once per day, often during the night shift.
- Eagle Heights gardens should be better connected to the rest of CNA w/ walkways, sidewalks, etc.
- Design elements and areas have to be manageable by university staff, otherwise they begin to decline in appearance (i.e. Limnology garden West of Limnology building along Lakeshore Path)
- 1918 Marsh
 - First lake, then farm, then restored to a marsh.
 - What makes sense ecologically?
 - What can be maintainable w/in a sustainable framework?
 - Recreational Fields to the West.
 - There has been some thought about expanding the marsh and reducing the rec. field area because they are prone to flooding.
 - However, rec. space is already hard pressed and the comprehensive stormwater plan already removes rec. fields where Co-Gen plant laydown/staging area is currently. These are not going to be added.
 - Rec sports will be doing an inventory of existing facilities and weighing that against current and future use and needs.
- A goal should be to identify areas within the CNA as well as buffer zones that are fragile, irreparable, unique, etc.
 - Create a filter for individual projects to go up against in the future in terms of growth management and weighing pros and cons.
 - Future building space: nothing will be more than 6 stories around CNA or campus in general. Parking will likely go up (ramps) rather than out whenever possible.
- Willow Creek
 - A lost resource. Replacing 6' storm w/ 8' storm b/c it provides an outlet for all stormwater from Hilldale Shopping Center to campus.
 - Can we make it a feature and provide access to it like the lake? Overall campus master plan is looking at this area as well.
- GOAL: To stress the economic and cultural benefits of Campus Natural Areas rather than create a defensible boundary. Use language in the Master Plan to support the consensus building and advocacy of these areas, rather than physically staking out boundaries. Create allies out of all user groups.

Cultural Resources Presentation

29 November 2004, 10:00 a.m.

- Brenda Williams (Quinn Evans Architects) and George Christiansen (Archaeologist, Great Lakes Archaeological Research Center).
- Cultural Landscape Resources—study applies professional standards to identify cultural landscapes.
 - *A Guide to Cultural Landscape Reports* (1998, NPS).
 - J. Paul Getty Campus Heritage Program (funding source)

- Project team: UW Department of LA, UW FPM, UW Library Archives, Steering Committee, Brenda Williams, George Christiansen.
- Project Products: Cultural landscape report, archaeological report, historic photograph & database & website, public outreach and staff training, coordinating with other campus planning efforts.
 - First draft will be prepared in March, 2005.
- There are archaeological sites on almost every single high point in CNA and especially at the base of Picnic Point.
- Resources start at 10,000 BC and go up to present.
 - Greatest number of mounds on the UW Campus/CNA in the US and perhaps the world.
 - A remarkable number of these campus sites w/in the CNA.
- Observatory Hill Cultural Landscape
 - Significance through prehistoric and historic uses and period of significance hasn't ended.
 - Is the significance what you can see or what is there? (i.e. parking lot 34 in the CNA and adjacent to Observatory Hill—it's there, but most of the year you can't see it because of vegetative screening—do you leave it there or remove, regrade, and revegetate hill).
- Coordinate w/ Cultural Master Plan group.
- Is it appropriate for C.N.A. to manage the Aust Rock Garden at Ag Hall and Marlatt Rock Garden/Euthenics Oak at SOHE? Other none-contiguous natural garden spaces? How to manage non-contiguous natural gardens?
- Cultural Resources Plan identified 5 significant landscapes within C.N.A. but these fell out of their focus plans (Picnic Point, Eagle Heights Gardens, Lakeshore Path, Class of 1918 Marsh, Muir Woods) – does this become our charge?

The Preserve Committee

29 November 2004, 11:00 a.m.

- A zoned approach is a successful way to view and plan/preserve CNA.
 - Intensity of use and management of the level of intensity.
- GOAL: Create a “collective resource for campus and community that is highly valued and vigorously supported”.
 - Articulate the institutional value of CNA and preservation of areas.
- Create a marketing package that forms alliances all over campus so that if a move is made to develop a part of CNA there is a broad-based outcry from across campus.
- GOAL: To articulate and consolidate the IDEA of the CNA, which is just as important as articulating and consolidating the physical aspects.
 - Look at zones of impact that are not directly w/in the CNA i.e. viewsheds, stormwater.
- GOAL: To make sure that the creation of a master plan does not “pocket” things i.e. classroom experiences/experiments in a specific place and thus detract from the educational benefits.
- GOAL: To connect stories of this landscape with campus and to pass on

these stories (in the form of signage, presentations, newsletters, etc).

- Recognize the C.N.A. landscapes as “profoundly storied” – what opportunities and methods exist to tell these stories?
- GOAL: To create a biological plan and identify processes and practices that need to be put into place in order to create/foster/maintain the biological community plan.
- Do we target and delineate specific biological communities – i.e. prairie, savannah, mesic woodland – or allow for a spectrum of characteristics, less rigorous definition (jerry)
- GOAL: To create design guidelines for infrastructure and administration in terms of what types of activities are allowed and not allowed as well as what materials to use for different areas.
- GOAL: To create different areas for high vs. low impact users
- Concentrate some effort of specific planned areas i.e. shorelines.
- GOAL: To develop the CNA Master Plan with long-range vision of 50-100 years. Ask ourselves “What are we leaving for next generation?”
- “How do you integrate the disparate patches of CNA into an entity—a unified whole?”
- Should Big Woods be a focus for future acquisition efforts to include and protect in the CNA? Are there other areas that may be included in future acquisition discussions by expanding the CNA boundaries?
- Three treatment areas:
 - Picnic Point Entrance—the main entry point for groups into CNA, the “historic front door”, create some sort of gathering space and informational area.
 - Picnic Point Tip—management/erosion issues. How do you manage large groups in this area? How do people get to the lake (visually, physically)?
 - Frautschi Point—management/erosion issues. Huge donors of this piece of land that would like to see a more intentional use and connection.
- Campsites/Firepits are heavily used and it may be beneficial to create a large group gathering space at one of these.
- Importance of direct connection and access to water – part of experiencing the C.N.A. is getting to the water's edge – need to recognize and manage these impacts
- Question: What do different users/stakeholders value about CNA—can we create a dialogue that brings forth these values?
- Importance of recognizing the expertise on the C.N.A.C. and tapping into their collective knowledge for appropriate management
- Preservation of natural biological communities important.
 - Distant viewsheds of biological communities (a wooded area) are just as important to some people as the underfoot view (what's growing around the trail).
- There is a need to look beyond the shoreline and understand the aquatic and hydrologic processes and systems. University Bay and 1918 Marsh used to be connected.
- Interface b/w Lakeshore Path and rest of campus (Observatory Hill, Lakeshore Dorms, Natural Areas)...there seems to be a hard, distinct line between these and perhaps the lines should be softened, blurred, blended. Give

thought to transition between spaces both w/in and adjacent to CNA.

- Create experience for outside non-academic user that adds some element of education to their interaction.
 - Bird watching as a means of interacting with the general public and educational outreach.
- Connectivity and corridors for wildlife are important.
- LAKESHORE NATURE PRESERVE (leading candidate for re-naming of CNA). This would help to unite the areas from a psychological viewpoint. Need to think about unity from a physical standpoint as well.
- Create an observatory platform somewhere? At the end of Picnic Point?
 - If we do decide on an observation tower or a constructed approach to the water, can we use models already developed and tested in this are i.e. from the WI DNR?
 - 1918 Marsh viewing stand not useable from May-mid October because of height of cattails. There is no way to see ducks or the inner bay from Picnic Point.
- CNA as an "Important Bird Area"—an international designation/recognition. Each state makes a list that integrates into the statewide bird plan, which goes into the statewide animal plan, which will feed into a nation-wide list in 2006. Roma is working to get the bay area this designation.
- Can we create fingers of green between the more formal campus greenspaces and the CNA?
- STORY: Class of 1918 Marsh: The challenges of creating a reconstructed wetland where there once was a natural one; why it doesn't work as well; use historical photos, portraits throughout history to support the narrative.

The most important aspect of this meeting stressed the fact that there is no good access to the water, either visually or physically. This is very much in line with other group discussions.

Site Services

29 November 2004, 1:00 p.m.

- There was no proactive management of CNA until Cathie's position was created in 2000.
 - Arboretum was in charge of management up until that point and they didn't do much management at all after 1980 because of staffing issues.
 - Site Services received conflicting views about type of management to be completed. Looking for compatible direction from all parties involved.
 - Work is now being done by Facilities Management staff and volunteers.
 - Hazardous tree removal still Karen's responsibility.
- Staging Area:
 - Functions as a holding area for wood chips, soil, gravel, building rubble etc.
 - Temporary equipment storage
 - Staging area not ideal because of access point (vehicles have to go through main entrance at base of Picnic Point), steepness of access terrain, eyesore potential.
 - Explore other sites within C.N.A. for staging area
 - Bill's Woods – Gary Brown preferred option, less ideal for access and would require removal of trees
 - Near Water Utility Bldg. in Base Field – already degraded (formerly farmed), easily accessible
 - Wood chipper is loud; trucks are large and make noise when they back up.
 - Would need 1-2 acres and could be more aesthetic.
 - *Discussion of remnant farm idea where staging w/in red barn and barnyard used

as well in an agrarian-feeling way – why shouldn't this function be acknowledged?

- Snow pile—used to be piled on parking lot near 1918 Marsh, but transportation wants to use that space.
- Grounds also stores smaller tools/equipment at the Beachhouse on the North shore of Picnic Point.
- Move Beachhouse near 1918 Marsh to serve as a shelter? Utilize Beachhouse as learning center – field station function for class and research activities?
- Willow Drive – formerly Park and Pleasure Drive – opportunity to once again have auto access to lakeshore? Provide another level of access for potential donors.
- Need to tie management policies and guidelines to landscape – C.N.A. in flux, lack of clear direction for Physical Plant managers and crews

PLAN OF ATTACK:

- Identify location of remnant vegetation communities and areas of undisturbed native soils – check for original 1840 survey notes.
 - Build in zones for expansion of those communities once they're nourished and tended to.
- Identify archaeological and landscape icons.
- Uncover the history and tell it as a story (aboriginal, post-settlement, modern uses.)
 - Use old section maps, photographs, agricultural records for the farms, courthouse records for plat and use.
- Use "other" areas for pathways, gathering spaces, FP&M staging area, etc.

Planning/Housing

29 November 2004, 2:00 p.m.

- Interaction of students with CNA is important.
- Many of the resident halls are directly adjacent to CNA, need more input at these areas.
- How do students understand what the CNA is? Uses within CNA are an issue with students – bike, trails, materials of trails, accessibility.
- A degraded landscape exists North of Liz Waters Hall.
 - Some safety concerns raised: clearing out wooded area may invite more people up to the dorm from the Lakeshore Path. Perhaps look at more of a terraced landform on the North of the dorm.
 - Lighting may provide a false sense of security to some of these areas.
- Housing would ideally like more flat, open greenspace...can be informal, unprogrammed areas.
 - Liz Waters has no usable outdoor greenspace.
- A deck space out over the lake i.e. Union Terrace would be nice down by the Lakeshore Dorm community.
- Opportunities to develop Willow Beach as a gathering space near the Lakeshore Dorms? – goals to re-establish beach, though frequently closed due to bacterial counts; possible Union boat storage location
- Ideal large group gathering area:
 - Closer to base of Picnic Point.

- Partially wooded for a feeling of escape and enclosure
- Plan for groups of 50-100, esp. at beginning of school year (August-October).
- No other spaces on campus that are planned for large group gathering areas.
- Students would use a shelter w/ picnic tables
- Restrooms at Carson Gulley used during Lakeshore Dorm gatherings; vault toilets at Picnic Point – if upgraded, need to be accessible
- Fish boil pit to north of Tripp/Adams used by conferences in summer.
- Woods feel unsafe for University Apt. and garden users because of people living in them and people exposing themselves.
 - Perception that any improvements (i.e. toilets) would draw more outside people into the area and increase safety concerns. Minimize development for less appeal to marginal users
- A sidewalk along Lake Mendota Drive would make it much safer for Eagle Heights residents to move back and forth to gardens and CNA and even just walk around w/ young children. Need walking paths outside of traffic areas, surfaced to accommodate strollers.
- Moorings:
 - Area 1, off of Union Terrace
 - Area 2, near Willow Creek
 - Area 4, to East of Willow Beach
 - 64 Total, waiting list, have to be a member of the Union or a student/faculty/staff to rent these out.
 - Waiting list of 25 – 30 last summer, with 5 or so accommodated
- Canoe Posts:
 - Installed 8 years ago along Lakeshore Path, now painted green.
 - Posts can be rented w/o UW affiliation or Union membership
 - Posts outside Mooring Field 2 are used for dories/dinghies to access sailboats – if Willow Beach had a pier, could provide common boats for use
 - \$42/season (season is April 1-November 15)
 - Roughly 32-40 posts
 - A few complaints of boats strewn along shoreline as an eyesore and erosion problem.
 - Could consolidate this area and get boats off of shoreline—a rack of some sort w/ graded access to lake.

Permit Holders

29 November 2004, 3:00 p.m.

- Naval ROTC—use Picnic Point and trail connections for running, a bit of land navigation, would like to continue their use of the area.
- Army ROTC—use CNA for off-trail navigation by small groups of 4-5 people.
 - Total off-trail usage about 15 hrs per semester.
 - Can only go to Fort McCoy 2x per year because of cost, so having a space on campus to train is extremely valuable.
 - This is a regularly scheduled class (lab) that meets at a specified time and day (Thursdays 4-6 p.m.)
 - Like the wooded areas w/ thick understory and Frautschi Point in particular for identification of land features (spur, draw, ridgeline, valley, etc) – use roughly a diagonal from Caretaker's Woods to Second Point
- Chadbourne Residential College-Muir Mentors

- 5th graders from Lincoln Elementary school in mentorship program w/ first-year college students from Chadbourne.
- Many students see this as an “undergraduate woods”.
- University Health Services (UHS)
 - Promote CNA as a restorative and contemplative space
 - Active uses conflict with this function – noise issues with Lot 60 rallies and loud music
- Birding
 - Bird Project identifies a baseline for birds inhabiting C.N.A. at different times of the year. Roughly twenty years of data has been collected.
 - Picnic Point is a fallout (shelter area in inclement weather) in spring and Frautschi Point in autumn. Need to maintain spectrum of vertical plant presence – birds move toward ground following insects, can't have only canopy.
 - Would like to see motor boat speed limit enforced on both sides of Picnic Point.
 - An important link is formed along the North Shoreline between Frautschi Point and Picnic Point and all vegetation layers are important – need corridor north of Biocore Prairie.
 - Free, leash-less dogs are a problem for birds and people.
 - Need to retain buffer around Class of 1918 Marsh – Issues with tall, hybrid cattails
 - Snow storage area – avoid regarding, need pools from variable topography to accommodate terns and sandpipers
- Archaeology
 - Main trail from base to tip of Picnic Point infringes on a 5' buffer for mounds—an illegal alignment. The back trail does not encroach. Some mounds have been hit by maintenance vehicles due to this proximity. Boulders have been set along mounds to keep trucks away.
 - All mounds have varying degrees of vegetation on them.
 - Recreational uses near mounds must be reviewed in regards to their potential for mound disturbance.
 - Some of the fire pits were placed on top of archaeological sites and their use as such is contributing to erosion.
 - Story of tent colony not well documented or told: period of use was 1912-1962.
 - Evidence of 5 residences and 7-8 outbuildings within C.N.A.

Friends of the Campus Natural Areas (FCNA)

29 November 2004, 4:00 p.m.

- FCNA Background:
 - In round numbers:
 - 200+ members who support the C.N.A. with their energies, ideas, finances and enthusiasm.
 - 10% + very active workers.
 - 20% + good contributors and volunteers as needed.
 - Substantial sources of expertise in C.N.A.-related disciplines
 - Extensive and long-term field experience in the C.N.A.
 - Excellent links to the community and other organizations
 - How C.N.A. came to be:
 - Informal, but effective work groups volunteering in the C.N.A. were...
 - Influenced by UW establishment of separate C.N.A. responsibility and ...
 - Organized formally 3+ years ago and registered as a 501c3.
 - Members and Board Members include:

- UW personnel – active and retired faculty/staff – Many Alumni
- “Neighbors” – including many from Shorewood Hills
- Regular and long-term C.N.A. users
- Members of related organizations (e.g. Friends of the Arboretum)
- Key goals from the C.N.A. Mission Statement:
 - Assuring Preservation and Protection in Perpetuity
 - Supporting the UW’s efforts for “Biodiversity – Education – Appropriate Use – Support” (see appended “Statement of Goals”)
- Ongoing Activities and Publishing
 - Newsletter – Website
 - Annual Meeting – Field Trips
 - Substantial Work Projects and Cooperation with others in field work
 - Participation in CNAC meetings and as subcommittee members
 - Liaison with Alumni Assn. – UW Foundation.
 - Fund Raising Activities
- Special Things the FCNA can contribute:
 - Encouraging the broad base of support essential to long term protection
 - Providing a community viewpoint in CNA planning
 - Encouraging the support of UW Alums and groups with related interests
 - Mobilizing volunteers and supporting CNA projects
 - Contributing to C.N.A. – related education and to “brand recognition”
 - Raising funds (perhaps in a major way as planning advances), etc.
- FCNA would like to see signs or markers that delineate the boundaries. Should go beyond boundaries, needs to address views to and from water, as well as sounds and light.
- Include viewscape, soundscape, and lightscape within the master planning process— just as important as landscape.
- Boundary vs. non-boundary issues.
- Hindrances:
 - ROTC navigation classes
 - Mountain bikers
 - Dogs
- Angler’s Cove as an example of a successful restoration project that enhances access and visibility to the CNA.
- Lakeshore Path as perhaps the best-known of the CNA components.
- Glenda’s Trail at Frautschi Point is a successful clearing of exotic understory and introduction of human foot traffic.
- GOAL: To create a vision for the landscape through stories.
 - If we tell the stories in a compelling way, there are major fundraising opportunities.
- Tom Brock – FCNA historian and founder with wife, Kathy
- Fundraising important function of FCNA - \$250K gift from Class of 1955 cited related to tent colony site
- Importance of “signature landscapes”
- Balancing of volunteer efforts and fundraising
- User groups that FCNA feel are important – gardeners, kiln-users, people looking for solace/contemplation.
- Big picture – emphasize importance of area on both national and international level. This is a place for people unlike any other place they have ever seen.

This big picture could be important to future donors.

- Have people take away multiple memories of the area. Recognize that uses we see as undesirable now may well become the memories of C.N.A. for future generations of students (future alumni). How can we avoid creating a negative image of C.N.A. by too much restriction of use?

Eagle Heights Listening Session ***15 March 2005, 6:00 p.m.***

Summary (by Ken Keeley, Ken Saiki Design)

Cathie Bruner (UW FP&M), Laura Schere (University Housing) and I facilitated an information and listening session on the UW Campus Natural Areas with the Eagle Heights Assembly. We had 45-50 people in attendance, many of whom were Eagle Heights Community Garden users. Not surprisingly, the bulk of comments received pertained to preserving and possibly expanding the Community Gardens as a valued amenity for Eagle Heights residents and the University Community.

We provided a brief overview of the Campus Natural Areas, discussing some of the historic uses, current uses, landscape units, and the planning process in general. Following this introduction, four prompting questions were posed to generate discussion:

1. What are your favorite places within the Campus Natural Areas: what characteristics of these places appeal to you?
2. What changes in the Campus Natural Areas would enhance your enjoyment of this landscape?
3. Have you experienced conflicts with other users or uses in the Campus Natural Areas?
4. What is your most treasured memory of a place or moment within the Campus Natural Areas?

Our discussion was weighted most heavily on question 1 which generated some lively participation. We also asked participants to write responses on notecards which were collected after the event. Following are tables indicating responses and the frequency each response was cited by participants, listed in order of magnitude. Respondents were able to list multiple entries.

What are your favorite places within the Campus Natural Areas?

Favorite Place	#Responses
Eagle Heights Community Gardens	26
Lakeshore Path	24
Picnic Point	9
Frautschi Point	6
Woods (general)	6
Angler's Cove	5
Trails (general)	5
Eagle Heights Woods	4
North Shore Woods	4
Old Orchard Field	3
Caretaker's Woods	2
Muir Woods	2
Old Beach House	2
University Houses Gardens	2
University Bay	2
Class of 1918 Marsh	2
Path: to Picnic Point	2
Anyplace with solitude	2
Path: Frautschi Point to Angler's Cove	1
Stone Entrance Gate (Picnic Point)	1
Road: Main Gate to Evergreens and Owls	1
Path: Wally Bauman Woods & North Shore Woods	1
Carriage Road off Lakeshore Path	1
Whole Setting	1
Tip of Picnic Point	1
Lake Mendota Drive (views)	1
Biocore Prairie	1
Beside Lake (general)	1
Secluded Clearings (general)	1
Wally Bauman Woods	1
300 Year Old Oak @ Hilltop	1

What conflicts have you experienced with other users or uses?

Conflicts	#Responses
Plans to reduce # of garden plots	4
Use of herbicides near organic gardens	3
Stealing from gardens	2
Off-leash Dogs	1
Bikes ignoring regulations	1
Biocore Field – weeds, land could be used better	1
Bikes/Cars/Pedestrians on Lake Mendota Drive	1
Different Rules for CALS gardeners	1
Trucks in gardens	1
Lakeshore Path Construction	1
Glass on Beaches	1

What changes would enhance your experience in the Campus Natural Areas?

Desired Changes	#Responses
More Garden Plots in E.H. Community Gardens	11
Reduce Herbicide Use	5
More Informational Signs	2
Path along Lake Mendota Drive/Woods	2
Better Established Trails	1
Discourage Off-Trail Use	1
No Paved Paths	1
Retain Old Carriage Path	1
Bring Tennis Courts Back to Univ. Bay Drive	1
More Native landscape, less lawn around E.H.	1
Leave Woods Alone	1
(Re)Create Orchard	1
Drain or designate wet areas in gardens	1
Reduce mosquitoes	1
Reduce or mark poison ivy	1
Replace every tree removed for developm't with 2-3 more	1
Add paths – Angler's Cove area	1
More wild flowers	1
Keep it natural – use natural means to esta. prairie	1
Some Maintained park-like areas	1
Benches along paths	1
Flower gardens	1

What is your most treasured memory within the Campus Natural Areas?

Treasured Memory	#Responses
Gardening (general)	6
Being part of gardening community	2
Participating in tradition of gardening	2
Watching a hawk catch prey near gardens	2
Seeing baby turtles	1
Seeing indigo buntings	1
Seeing orioles in the marsh	1
Exploring woods with family	1
Seeing a swan on Class of 1918 marsh	1
Watching sunset from top of E.H. gardens	1
Seeing 2 eagles @ Frautschi Point	1
Biking along the Lakeshore	1
First time driving into Eagle Heights	1
Seeing a person sitting & reading in midst of open field	1
Walking 'home' along lakeshore when living in dorms	1

Study Group Discussion Summary

Class of 1918 Marsh

10 August 2005

1. Introductions:

- a. Attendees: Kathy Kalscheur (DSF); Kris Anderson (Ayres Assoc.); Evelyn Howell (UW-Madison Dept. of Landscape Architecture); Joy Zedler (UW-Madison Dept. of Botany); Ken Potter (UW-Madison Dept of Civil & Environmental Engineering); Gary Brown (UW-Madison FP&M); Steve Harman (UW-Madison FP&M); John Harrod (UW Physical Plant); Cathie Bruner (Lakeshore Nature Preserve Manager); Tom Price (Conservation Design Forum); Ken Keeley (Ken Saiki Design – recorder)

2. Class of 1918 as an Urban Marsh Field Station

- a. Faculty summary, current conditions of the marsh
 - 1. Class of 1918 Marsh reconstruction begun in 1970s. The wetland restoration was undertaken for educational purposes as well as enjoyment as a natural feature on campus. At the time restoration commenced, the approach was digging a pond with a weir outlet to the lake and planting the periphery with prairie. Historically it was a sedge meadow complex with tamaracks (though drained in the early 1900s for agricultural use). Invasion by exotic wetland species has been recent. Cattails were kept in check over many years by muskrats, though they are now gone so hybrid cattails have proliferated. Concern with Marsh functioning as a stormwater management facility.
 - 2. Little management – Marsh was left to reach its own outcome, and is now of low educational, aesthetic and ecological value
 - 3. Currently 3 sources of input to marsh: rainwater, runoff from playing fields, runoff from the hospital complex - flows into marsh when lake level is high or during big storm events. Stormwater from hospital complex is infrequent – every few years with big event.
 - 1. Snowpile – most debris is left at the snow storage site.
 - 2. Silt input – not much currently
 - 3. Sediment from muck/peat buildup of decomposing cattails
 - 4. Pump station is well-maintained
 - 5. Weir station – water level was previously higher
- b. Vision for the Class of 1918 Marsh as a laboratory and teaching facility
 - 1. (Evelyn) Manage as a conservation area. Diversify plant communities, support a variety of wildlife.
 - 2. (Joy) Opportunities for students to learn while restoring 'target communities'. Iterative process to reach goals. Desire for long-term and short-term research studies – currently lacks quality necessary for educational opportunities. As lab – can generate research funding.
 - 3. Historic condition cannot realistically be achieved – interaction with lake is no longer possible
 - 4. Desire to partition wetland: develop as lab by controlling water flow to different compartments within marsh – provides ability to experiment in temporal and spatial scales.
 - 1. Plumbed system with range of community types from fen-like to basin marsh to deep pool
 - 5. Remove circular parking lot, develop trail head and educational center:
 - 1. need about 20 stalls on-site, site near bus-stop
 - 2. center – wet lab facility desired, class space to accommodate 25-30 students: Urban Ecology Field Station as an example
 - 6. Dredge for deep pool
 - 7. Reconfigure shoreline

- 8. Acquire flooded (unplayable) areas of rec. fields
- 9. Relocate snowpile to north side of marsh
- 10. Raise athletic fields and underdrain to encourage groundwater flow
- 11. University Bay boardwalks & platforms

c. Goals

- 1. Variety of marsh/wetland communities represented for education/research
- 2. Ability to control water quantity for experimentation
- 3. Improve overall quality of marsh
- 4. Provide greater access to marsh
- 5. Compartmentalize marsh communities
- 6. Encourage multidisciplinary experimentation
- 7. Work toward restoration goals as part of The Preserve
- 8. High quality water in and out of marsh

3. FP&M and DSF summary

- a. Status & coordination of building projects
 - 1. West Campus Stormwater Plan
 - 1. Includes cisterns: though issues with above and below grade – above grade has temperature issues, below contends with high water table.
 - 2. Interdisciplinary Research Center
 - 3. American Family Children's Hospital

4. Discussion of engineering strategies to achieve the vision

- a. No Groundwater flow into marsh – most currently goes to lake, lake levels relatively high
 - 1. Opportunities for infiltration: Hospital Complex runoff; underdrain system in adjacent playfields
 - b. IRC and Children's Hospital: Rain gardens planned, though function is questionable
 - c. Issues with stormwater: desired plant communities sets water quantity and quality requirements
 - 1. Plant diversity requires clear water
 - d. Resculpting of marsh bottom for better wildlife habitat
 - e. Response to urban issues, water quality – must be a hydrological and biological response
 - f. Source of water in drought? Ability to pump in lake water? Or drought as part of experiment – simulate natural conditions
 - g. Green roofs not considered with hospital buildings
 - h. Issues with limestone ballast – modifies pH of roof runoff
 - i. Sump pumps at Waisman, etc.
 - j. Buildings on Chilled Water lines – supplementary chillers: can harvest condensate

Master Plan Public Presentation Summary

20 September 2005

1. Introduction by William Cronon, Lakeshore Nature Preserve Committee Chair:

- a. Key Points:
 - i. Reinforcing Name Recognition of Lakeshore Nature Preserve
 - ii. Establishing "The Preserve" as key feature of the 'mental map' of campus community members and local residents
 - iii. Establishing a systematic philanthropic effort:
 - 1. Foundation Stewardship Fund
 - 2. Friends of Lakeshore Nature Preserve
 - iv. Increase staffing; address management issues

2. Presentation by Gary Brown, UW-Madison Director of Planning:

- a. Presentation Notes:
 - i. Overview slide: line on left to line up text near Angler's Cove
 - ii. Take detailed text off of Archaeological/Cultural Resources slide for Powerpoint presentations
 - iii. Change text on "Willow Creek Watershed" to use verbs first
 - iv. "Sustainable Management Guidelines" slides 2 & 5 – do they say the same thing?
 - v. Clean up Proposed Circulation Map – emphasize revised path configuration for barrier free accessibility
 - vi. Discuss addition of 'lawn' to future vegetation map with Committee
 - vii. Add proposed sq. footage to Preserve Center Site Design Slide
 - viii. Picnic Point Slide out of order?

3. Q & A led by Gary Brown (gb) & William Cronon (wc):

- a. Nancy (Physical Plant – reservations): **Expanding facilities adds to reservation issues – currently short on staff. Need to develop new process for reservations – automated system, under FP&M umbrella. Opportunity to house reservation management within Preserve Center?**
 - i. (response) Labor & staffing issues are of concern to Committee but will not be resolved within this Master Plan. An online reservation system could be explored with revamped website for Preserve.
- b. Ed (concerned citizen): **Reaction to proposed development of tip of Picnic Point – need to take care not to overdevelop. Minimal impact on appearance, no structures. Anything proposed should be low-key without disrupting natural character.**
- c. Dan (Friends of Preserve): **Concern that a small Preserve Center could easily become an expansion opportunity – similar to McKay Center at the Arboretum, continuing to grow once established.**
- d. Glenda (Friends): **Need to work hard not to over-develop the Preserve; minimal build-up of Picnic Point. Is Picnic Point an appropriate place to plan for large group gatherings? Preferred development would be naturalistic in character with opportunities to reach water.**
- e. Janet (Biocore): **Biocore is in desperate need of storage for mowers, hoses and fire management equipment. Would the old Bath House or dock storage area be opportunities for Biocore equipment storage?**
 - i. (response) Perhaps there is an opportunity to introduce a small farm-like structure near the community gardens/Biocore Prairie for shared use. Bath House has limited use currently – was originally constructed to accommodate sail-boaters (?) but sewage system has been non-functional.

- f. Dan (Madison resident): **Concern with use of toxic herbicides (glysophates) – proliferation of invasives is considered less harmful than use of herbicides. What are long term effects of herbicide use?**
 - i. Master Plan will not get to the detail of recommended management tools, but will propose fire management as an alternate.
- g. Jim (Madison resident): **Also concern with herbicide use – won't herbicides linger in soil and threaten native plants as well?**
- h. Jim Kitchell (limnology prof.): **What is the fate of Lot 34? Also – fallen trees along the shoreline are critical habitat and should be allowed to remain where they fall.**
 - i. Current proposal is to redevelop Lot 34 with permeable pavement, though in the long-term (10 yrs. or more) it will be removed and stalls will be relocated to new underground lot at proposed building at Charter & Linden. Comprehensive Master Plan recommends movement away from surface parking altogether.
- i. Susan Slavnick (neighbor and Friend): **What is about the snow storage pile – where will it go?**
 - i. The snowpile will be relocated to the northside of the marsh, and could function as a seasonal parking area after the snow melts. As the surface parking is eliminated on campus over the next decades, less snow will need to be stored.
- j. Katrina (UW Student): **Are there opportunities to filter stormwater before it reaches the lakes?**
 - i. Stormwater is more effectively managed at the source, not the discharge point. UW will be working with City of Madison to manage storm discharge into Willow Creek.
- k. Janet (Biocore Prof): **Willow Creek serves as fish, insect and turtle habitat and was channelized in the 1920s – any opportunity to re-establish natural meander and lay back slopes? Also – flows are generally very slow, though storms result in hydrographic flashpoints – even flushing live raccoons through the system.**
 - i. There is a difficult trade-off; campus development has made realignment or expansion of the Willow Creek Corridor infeasible. Need to pursue management of stormwater upstream.
- l. Dick Dwelle (zoology prof.): **Is campus slowing growth in overall plan? Needs to slow growth or Preserve will continue to be subject to development pressure.**
 - i. We need to declare that this green space is just as important to campus life as other aspects; need to reinforce the importance of campus green space.
 - ii. Campus has 900+ acres with 300+ acres in The Preserve. Preserve area is considered off-limits to development. What is the capacity for growth in the remainder? Can potentially add 6 million sq. ft. of buildings. 96 acres of surface parking can become buildings with parking ramps or underground parking.
 - iii. Though enrollment management will keep student body around 40,000; UW-Madison is experiencing 3% annual growth in its 'research engine'.
 - iv. Importance of recognizing that land conservation is never finished, that future generations will need to continue efforts to protect The Preserve.
- m. Noah (UW Student): **Don't see much additional related to educational opportunities – as coordinator for Adventure Learning, is there a possibility of introducing a Ropes Course at the base of Picnic Point. This idea was introduced in 1995 and a location is still desired.**
 - i. There are issues with appropriate and inappropriate uses that continue to be debated, particularly when the introducing man-made structures.

- n. Kathy Brock (Friends): ***What is a green roof – is this sod/lawn?***
 - i. Not typically turf, but a vegetated rooftop with low maintenance plants such as sedum in a soil medium over a water-proof membrane.
- o. Blake (UW student): ***Should not provide parking – parking will encourage greater impacts. Encourage people to bike or use alternative transportation.***
 - i. Current parking is largely used by students that park in the lots near Picnic Point and bus into campus. University Bay lot is being removed.
- p. Ann (UW staff member, area resident): ***Accessible paths – are these paved? Picnic Point needs to have shoreline access.***
 - i. Need to allow shoreline access at Picnic Point and other areas. If it isn't provided, it will be created by users.
 - ii. Limestone screenings on Lakeshore path are considered barrier-free, accessible paths don't need to be paved with hard surface materials.