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 Friedrick 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 reflect 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.
Proposed and Existing Trails
Proposed Circulation
Proposed Circulation and Future Vegetation

Lake Mendota

Circulation
- Swamp Marsh
- Marsh
- Prairie
- Wet Prairie
- Savanna Transition Zone
- Oak Openings
- Dry Mesic Woods
- Mesic Woods
- Lakeshore Fringe Woods
- The Working Landscape
- Naturalistic Management for Heavier Use
- CALS
- Community Gardens
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
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

Redeveloped Picnic Point Large Group Gathering Area with Shoreline Access, see detailed plan

Lake Mendota

Beach House and Gathering Space

Relocated Fire Pits with Enhanced Shoreline Access

Beach and Fire Pit

Seating Area

Improved Fire Pits with Lake Views

Drinking Pump

Bench and Overlook
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
Proposed Views and Buffers

Future Views Enhanced through Vegetation Management
Future Filtered Views from Pathway
Priority View

Buffers
- Buffer View, Screen Views
- Buffer Noise Pollution

Lake Mendota

Priority View:
Observatory Hill Overlook
Proposed and Existing Views and Buffers

- Existing Views
- Future Views Enhanced through Vegetation Management
- Existing Filtered Views from Pathway
- Future Filtered Views from Pathway
- Priority View

Buffers:
- Buffer View, Screen Views
- Buffer Noise Pollution

Lake Mendota

Priority View:
Observatory Hill Overlook
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](image1.jpg)
*Photo courtesy of Glenda Denniston*

![Heritage Oak following Restoration Work](image2.jpg)
*Photo courtesy of Glenda Denniston*
Future Vegetation

The information contained within this map was compiled by the Biology Subcommittee of the Lakeshore Nature Preserve Committee.
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
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

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
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.

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 waters 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.

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.
**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.
**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.

**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.
**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.

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**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.
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.

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.

![Informational Signage Intent can be Conveyed Using a Standard Language of Symbols Rather than Written Text](image1)

![Educational and Interpretive Signage within the Preserve can be of the Same Size and Quality as Informational Signage](image2)
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 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 pump house explained this pilot land reclamation project. With proper fertilization, the peat field yielded excellent 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 into 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.
  o Periodic draw-downs should occur to expose mudflats in the marsh.
  o 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:
  o The wet prairie encircling the marsh should be designed to absorb water from the recreational field.
  o 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